NOVEMBER 1949

The American City

ON VARIOUS tasks, from disposing of refuse to helping maintain the city's water supply, Denver finds crawler tractors, equipped with bulldozer blades, very useful pieces of equipment. (See Page 9)

● PHILADELPHIA, *Pa.*

● CLEVELAND, *O.*

● INDIANAPOLIS, *Ind.*

Some of the 1,500 cities which have paved with Texaco

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● AUSTIN, *Texas*

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TEXACO ASPHALT

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See pages 21, 23, 24, 26, 28, 147, 149, 151, 153 for catalogs and publications on municipal and civic subjects

List of coming conventions, page 129 **Index to Advertisers, page 210**

HOME TOWN BOOSTER

What the prosperity of the Telephone Company means to thousands of people and communities

Your Bell Telephone Company does more than provide good telephone service. Directly and indirectly, it touches some part of the business life and prosperity of almost everybody in town.

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About one family in every 35 in the country has someone who works for the Bell System or has invested in it.

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Our Municipal Notebook

A Business Leader's Advice to City Planners

FOUR cardinal rules for city planning boards and consultants were suggested to members of the American Society of Planning Officials at the National Planning Conference in Cleveland, Ohio, on October 11, by C. F. Hood, president of the American Steel and Wire Company. Taking as his theme, "A Businessman Looks at Planning," Mr. Hood pointed to the analogy between the complexities of business planning and city planning, and recommended to those engaged with urban problems:

First: Become informed about industry's needs. Understand the requirements of industry, in terms of railroads and other shipping facilities, shopping areas and schools, hospitals, mass transportation, recreational facilities—all those things which industry must consider in selecting locations. ; Strike a proper balance between industrial and residential areas.

Second: Use what you've got. By that I mean, utilize the vast pool of talent, public and private, that is available in every city you represent. Draw upon all the many individuals, groups, and agencies who are willing to contribute toward the universal goal of civic betterment.

Third: Be adaptable. . . . You planners have to be willing to adjust to changing conditions. There's nothing static about the job that confronts you.

Fourth: Don't work in a vacuum. Don't allow yourselves to fall into the frame of mind which lets you concentrate on one isolated section of your city. Think, instead, in terms of the entire community. Make sure your viewpoint is a broad one. Be sure that every single project meets, first of all, this one standard: "Does it fit into the over-all plan?" . . .

You have powerful tools at your command. One is the vastly expanded public recognition of the need to make our cities desirable places in which to live and to work. Another is legislation—local, state, and national, all founded on that same public consciousness, legislation like the Urban Redevelopment Section of the Housing Act of 1949.

Use both those tools, and use them well. If you do, then, gentlemen, you will be meeting the challenge which is yours today.

Puerto Rican Planner Elected President of ASPO

RAFAEL PICO, chairman of the Puerto Rico Planning Board, was elected president of the American Society of Planning Officials at the National Planning Conference held in Cleveland, Ohio, October 10-12.

PHOTO COURTESY OF THE CLEVELAND PLAIN DEALER

Ernest J. Bohn of Cleveland (left), nationally recognized for his work in housing and planning, and Rafael Pico, chairman of the Puerto Rico planning board, who were elected to head the American American Society of Planning Officials.

Other officers and directors to serve for the ensuing year are:

Vice-president, Ernest J. Bohn, Chairman, Cleveland City Planning Commission.

Treasurer, Charles S. Ascher, Chairman, Political Science Department, Brooklyn College, New York.

Other directors:

Frederick J. Adams, Chairman, City Planning Commission, Cambridge, Mass.; Charles B. Bennett, Director of Planning, Los Angeles City Planning Commission; A. E. K. Bunnell, Consultant, Toronto Department of Planning and Development; L. P. Cookingham, City Manager, Kansas City, Mo.; John T. Howard, Planning Consultant, Cambridge, Mass.; J. Lister Holmes, Chairman, Seattle City Planning Commission; Fred Kramer, President, Chicago Metropolitan Housing and Planning Council; Leonard Logan, Director, Institute of Community Development, Norman, Okla.; Ladislas Segoe, Planning Consultant, Cincinnati, Ohio.

New Administrators For Housing Act Named

THREE excellent recent appointments in the Housing and Home Finance Agency and the Public Housing Administration have brought encouragement to local officials and housing authorities looking to Washington for sympathetic and understanding interpretation and administration of pro-

The American City Quiz

Match Wits with the Experts

QUESTIONS

1. ***How can one reduce the trips made by the refuse collector from the rear of the house to the truck?***
2. ***What general rules should be followed when financing the construction of street improvements?***
3. ***Where is the largest reservoir built of prestressed concrete?***
4. ***What is a requirement contract in municipal-purchase parlance?***
5. ***How can one coagulate water most effectively from a "flashy" stream?***
6. ***How can one make a pavement cut for a water- or sewer-service installation without making a ragged patch in the pavement?***
7. ***How can one protect sandy beaches from being eroded by wave action?***
8. ***What compaction can one obtain by placing material in a sanitary landfill?***
9. ***How can one keep sewage digester gas from corroding gas engines, when the gas is used for power production?***
10. ***How are state-wide aviation rules administered?***

(Answers on page 9)

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visions of the Housing Act of 1949. All three appointees, promoted from within the agency, have good records of experience in the housing field, and gave active support to local groups seeking passage of the Housing Act. The appointments are:

Nathaniel S. Keith, Director of Slum Clearance and Redevelopment; formerly assistant to the Administrator, HHFA.

B. T. Fitzpatrick, Deputy Administrator of the Housing and Home Finance Agency; formerly General Counsel of the HHFA.

Warren J. Vinton, First Assistant Administrator of the Public Housing Administration, formerly Chief Economist of the PHA.

Mr. Keith will be responsible, under the Administrator, for carrying out the provisions of Title I of the Housing Act, which authorize $1,000,000,000 in loans and $500,000,000 in grants to communities throughout the country for acquiring, clearing, and preparing slum and blighted areas for redevelopment on sound use patterns.

Suggestions from Director Keith

CLOSE coordination of slum-clearance and urban-redevelopment projects with over-all community plans will be necessary in order to realize in full the economic objectives of the new Title I program authorized by the Housing Act of 1949, declared Nathaniel S. Keith, Director of Slum Clearance and Urban Redevelopment of the Housing and Home Finance Agency at the National Planning Conference of the American Society of Planning Officials in Cleveland, October 13. The newly named administrator is in the process of staffing his initial organization and putting his staff to work on the many policy determinations which must be made before the Agency begins to do business with the cities.

Concerned with affording a maximum opportunity for private enterprise to participate in redevelopment activity, Director Keith declared:

Clearly, it would not be realistic to look for substantial private enterprise participation unless projects are planned on a sufficiently large scale and in close enough conformity with the lines of over-all community growth to create a long-term favorable environment in the redeveloped areas. Likewise, the full economic value of the program to municipalities, in the form of restored or enhanced property values in present slum areas and in adjacent areas not yet affected by blight, and a reduction in the excessive municipal costs resulting from slum conditions, can only be secured on this same basis. . . .

We are confident that there will be a steadily broadening community response to the opportunities of this program. We believe that the availability of the financial assistance offered by Title I should in itself give great stimulus and impetus to general city planning. We feel that through this program cities at last have available the practical machinery which can break the financial bottleneck that has blocked any extensive redevelopment of slums and blighted areas in the past. We feel that this program offers to city planners the practical means they have long sought for transforming many desirable redevelopment proposals from the planning board into concrete reality. . . .

Municipal Costs Up In All Large Cities

GOVERNMENTAL spending by the nation's 37 largest cities amounted to $2,771,679,000 in 1948 as against $2,364,502,000 in 1947, an increase of 17.2%. Their revenue rose 14.2%, to a total of $2,562,850,000 in 1948. These amounts, with comparative financial statistics for each of the 37 cities of 250,000 or over, appear in a Census Bureau report, *Large-City Finances in 1948*, issued in September, 1949.

Every one of the 37 cities shared in the increase of expenditure from 1947 to 1948. In four cities—Atlanta, Columbus, Oakland, and San Antonio—the rise was more than one-third. Only four of the cities had an increase of less than 10%.

Current operation spending of these 37 cities was up 13.6% from the previous year to $1,915,402,000 in 1948. Every municipal function shared in this rise, as shown by the following figures (amounts in millions):

	1948	*1947*	*per cent increase*
Public safety	$442	$397	11
Schools	425	376	13
Public welfare	257	216	19
Health and hospitals	199	167	19
Sanitation	151	135	12
Streets	118	98	21
All other	322	297	8
Total operation	$1,915	$1,686	14

The nation's 397 largest cities together spent $4,048,467,000 for governmental purposes in 1948, according to the Census Bureau's "Summary of City Government Finances" for that year, issued last month. This exceeds by more than a half-billion dollars, or 16%, expenditure by these cities of over 25,000 during 1947. The 1948 spending total included $289,338,000 to provide for retirement of city debt.

Governmental revenue of the cities over 25,000 also reached a record level in 1948, rising 14% to $3,750,233,000. They also borrowed $449,869,000 for governmental purposes during the year.

Property taxes, which accounted for more than one-half of the cities' governmental revenues in 1948, increased 10% over the preceding year to $2,055,480,000. The yield of other city taxes, particularly sales taxes, rose far more rapidly. Total revenue from various types of city sales and gross receipts taxes was $345,455,000, or 31% above the previous year's amount. Fiscal aid received by the cities from state governments rose 14%, and their revenue from charges for current services also increased 14%.

The 397 cities spent almost half again as much in 1948 as in 1947 for capital outlay, chiefly new construction. Their capital outlay in 1948 amounted to almost a half-billion dollars.

After a wartime downward trend, munici-

At the Illinois Municipal League Convention

A sample scene from the fall round of important annual meetings of the various state leagues of municipalities is shown above. Retiring president of the Illinois Municipal League, Mayor James A. Hedrick, of Decatur (left), is handing over the gavel to the newly appointed president, Ernest Hoagland, Mayor of Jacksonville. Mayor Ralph B. Johnson, of Galesburg, is the new first vice-president, and William H. Winterhoff, of Lansing, far right, is sergeant-at-arms. For a listing of other important municipal meetings scheduled for the near future, see page 129 of this issue.

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pal debt leveled off in 1947 and turned upward in 1948 as cities borrowed extensively to finance capital improvements. Gross debt of the cities with a population over 25,000 rose $250,000 in 1948 to $7,519,191,000. The increase occurred both in debt for governmental purposes and in debt for utilities and other city-operated enterprises.

Denver's Crawler Tractors

CRAWLER tractors seem to be pulling themselves into the firm position of one of the most useful friends of the municipal public works official. The experience of Denver seems typical of many cities. Municipal officials find that these powerful, sure-footed units can be called on to give a good account of themselves in winter or summer, in good weather or bad, and in almost any sort of activity from supplying pure water to disposing of waste refuse.

Among the many services performed in Denver by tractors of various makes, the city makes use of a diesel crawler tractor and bulldozer to make quick, sanitary disposal of refuse by the landfill method. The bulldozer scoops out a deep trench to receive the refuse piled at the edge of the trench by trucks. Then it takes a turn at the top of the trench to push in the refuse, compact it by driving over it, and then seal it over with dirt.*

The Denver Municipal Water Works uses a crawler tractor of smaller size with a bulldozer. Its task is that of general maintenance of Denver's extensive series of canals, conduits, and roads.†

Water supply comes under the direction of George F. Hughes, Manager of the Board of Water Commissioners. Refuse disposal is one of the responsibilities of the undersigned.

CHARLES B. BERRY
Director of Public Works
Denver, Colo.

Oil and Gas Royalties Need Local Tax Review

FARMERS, ranchers, and holders of royalty interests in the United States are harvesting a tremendous "cash crop" from the oil and gas industry in the form of lease and royalty payments.

A survey released on September 26 by the American Petroleum Institute shows that, in 1948, oil and gas lease and bonus payments exceeded $400,000,000 and royalties exceed $800,000,000—a grand total which amounts to more than $1,200,000,000.

Lease rights are negotiated for the purpose of exploring private property for oil and gas pools in the never-ending search for more petroleum reserves. Royalty payments, when production results, amount to at least one-eighth of the value of the oil and gas produced.

The leases cover a total of 206,567,000 acres of farm and ranch lands in 37 states. They represent 10.6% of the 3,022,387 square miles of land and inland water areas of the United States.

The American Petroleum Institute points to the vast sum which landowners receive for these mineral rights as a striking example of the financial contribution of the oil and gas industry to the American economy. And these figures suggest also to THE AMERICAN CITY the question whether our county and municipal governments are recovering from the beneficiaries of the leases and royalties, through land-value or severance taxes, an adequate percentage of the value of the natural resources which these farmers and ranchers and other landowners did nothing to create.

* See front cover picture, top view.

† The lower photograph on the cover shows a tractor-bulldozer combination at work maintaining a part of the extensive canal system that brings water from the Platte River to the City of Denver.

The American City Quiz

Match Wits with the Experts

ANSWERS TO QUESTIONS ON PAGE 5

1. In the Washington Suburban Sanitary District, Hyattsville, Md., collection crews reduce the trips back to the truck by using burlap squares made of 8-ounce cloths. The squares measure 78 by 88 inches. A square will hold 60 to 80 pounds of refuse and will take care of about five houses. Each square lasts about five days.

2. W. L. Chilcote, deputy highway engineer, Baltimore, Md., catalogued street financing this way:

Major improvements—expressways, arterial highways, and bridges are capital facilities and should be financed by the public at large, not by property assessment.

Minor improvements—usually residential areas; at least half should be carried by property assessments.

Alleys—used for the health and convenience of the property owner; should be paid by property assessments.

Street maintenance—a general public obligation to be financed out of the general fund.

3. This is located at Rockford, Ill., and was built by the Preload Co., of New York City. Its outside diameter is 167 feet. It has a side-wall height of 30 feet and a wall thickness of 15 inches, gunited to 18 inches after wire prestressing. It has 180 miles of piano wire in it to apply the prestress load. It was built in 1948 at a cost of 2.75 cents per gallon of storage capacity under the supervision of H. S. Merz, Water Superintendent.

4. A requirement contract obligates the municipality to order from the seller all of the buyer's needs during the contract period. The quantities are not fixed and are generally restricted to those products in daily demand. Nelson Rosenbaum, former New York City Assistant Corporation Counsel, lists, as some of the objections to it, the tendency for a department head to spend his surplus rather than have it taken from him, and the tendency to create artificial needs.

5. Fremont, Ohio, had to face this problem. Its water supply comes from a river with turbidity ranging from 5 ppm to 3,000 ppm and with alkalinity and pH changes following about the same trend. W. H. Schneider, superintendent-chemist, uses the iron salt, Ferri-Floc, for a coagulant. He was able to use the same feeders and found that he had no residual iron in the water.

6. Long Beach, Calif., avoids those ragged service openings by using a Concut Jr., concrete-paving saw that makes a neat, clean cut. Some cities are considering making its use required by ordinance.

7. Miami Beach, Fla., protects its beaches with a system of bulkheads along the shore and groins reaching out into the ocean. These groins are spaced so that the length equals two-thirds the spacing between them. In Miami Beach, they are about 200 feet long and most are made of steel sheet-piling.

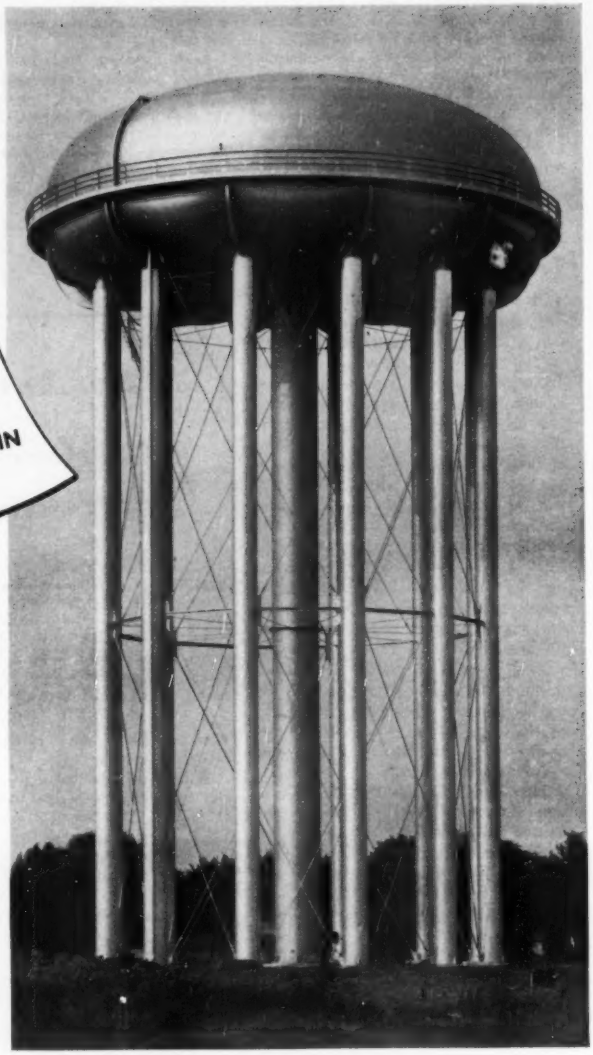
8. In Baltimore, Md., George Elliott, Jr., Associate Engineer of the city's Bureau of Mechanical-Electrical Service, has calculated a refuse density of 45 pounds per cubic foot in the fill. This is based on weighed truckloads coming into the fill, and measurements of the fill volume.

9. Oxnard, Calif., was able to prevent hydrogen-sulphide corrosion by raising the engine temperature to 220° F. The plant uses an Enterprise gasoline engine powered by the digester gas to do most of the pumping in the plant.

10. The Civil Aeronautics Administration reports that 31 states have special commissions and nine have aviation departments. In the remainder, the regulations are administered by one of the regularly established departments. Eleven states have special aviation police.

..."our experience with raising pressures has been most successful"...

RALPH CAHILL
VILLAGE COMMISSIONER
WHITEFISH BAY, WISCONSIN



Horton elevated tank solves pressure problems of well-known suburb . . .

The commissioner's remarks are significant because they are concerned with a problem that could confront the officials of any community. The residents of this attractive suburb north of Milwaukee take pride in maintaining the appearance of their property — as do suburban residents all over America. They use a great deal of water in the summer for lawn sprinkling—which made it difficult to maintain uniform pressures is the village water mains.

To solve the problem, the 1,000,000-gal. Horton welded radial-cone bottom elevated tank, shown at the right, was erected. It was installed at a location farthest from the point where water pumped from the City of Milwaukee system enters the village. Because of its location, this Horton tank, supplying the mains by gravity pressure, produces ideal back-feeding—thereby raising pressures in former weak areas.

This is just one example of the way in which municipalities are utilizing Horton radial-cone bottom tanks. Built in capacities from 500,000 to 2,500,000 gals., these modern welded elevated storage tanks provide the answer to better water service for hundreds of similar installations. Learn what Horton tanks can mean to your municipality by contacting our nearest office.

ENGINEERING DATA FOR WHITEFISH BAY . . .

Population Served—14,000
Area Served—2.1 square miles
Miles of Distribution Mains—17.2
Per Capita Consumption—105 gals. per day
Other Storage in System—None

CHICAGO BRIDGE & IRON COMPANY

Atlanta 3.....2114 Healey Bldg.
Birmingham 1.....1502 North Fiftieth Street
Boston 10.....1802—201 Devonshire St.
Chicago 4.....2127 McCormick Bldg.
Cleveland 15.....2236 Guildhall Bldg.
Detroit 26.....1501 Lafayette Bldg.
Havana.....402 Abreu Bldg.
Houston 2.....2101 National Standard Bldg.
Los Angeles 14.....1503 General Petroleum Bldg.
New York 6.....3308—165 Broadway Bldg.
Philadelphia 3.....1616—1700 Walnut Street Bldg.
Salt Lake City 1.....1501 First Security Bank Bldg.
San Francisco 11.....1233—22 Battery Street Bldg.
Seattle 1.....1301 Henry Bldg.
Tulsa 3.....1625 Hunt Bldg.

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

Treatment Improved by Activated Silica

ACTIVATED silica has been the means of increasing rates of water filtration, reducing chemical dosage, and generally decreasing the overall cost of water treatment. This point was made by A. B. Middleton, of the Philadelphia Quartz Company, Philadelphia, Pa., in a paper delivered before the Maryland-Delaware Water and Sewerage Association meeting held in Hagerstown recently. Cities now using activated silica in some form or another include the following:

Boca Raton, Fla.
Chicago, Ill.
Kansas City, Kans.
Houma, La.
New Kensington, Pa.
St. Augustine, Fla.
Vero Beach, Fla.
Lima, Ohio

Improvements to the Miami, Fla., plant will incorporate the use of activated silica as the only coagulant, Mr. Middleton stated, although facilities will be provided for feeding other coagulants.

Houma, La., was quoted as using activated silica in its plant. The Houma plant consists of conventional mixing and settling basins with a capacity of one mgd along with a more recently installed Accelator unit installed by Infilco, with a capacity of 2 mgd. As the result of applying N-Sol-A to the water, Water Superintendent Hazlip feels that the rate of flow in both basins and the Accelator is increased; the basins are operated for longer periods between washings with only slight increase in wash water; high chlorine residual is maintained without added cost; reduction in all chemicals used has been achieved with the exception of carbon and chlorine; a reduction in operating cost of 30% to 50% has been realized; and the quality of water, including taste, sterility and sparkle, were improved.

Mr. Middleton defined activated silica as a negatively charged colloidal particle formed by the reaction of a dilute sodium silicate solution with a dilute solution of some acid material. It usually involves dilution of a liquid sodium silicate containing about 8.9% NaO_2 and 28.7% SiO_2. The silicate is diluted to about 2% SiO_2, then the addition of an acid material, such as sulphuric acid, ammonium sulphate, chlorine, sodium bicarbonate, brings the SiO_2 content down to about 1.5%. The solution is then aged for 1½ to 2 hours at this concentration to permit growth of the silica formation. Further growth is then arrested by addition of water to bring the SiO_2 down to about 1% with resultant increased stability of the sol.

Eel vs. City of New York

IN HIS book, *Oath of Devotion*, Julius Isaacs, former New York City magistrate, tells the following incident of his prior service as an assistant corporation counsel in the city's law department:

One of the most amusing cases in the division involved a suit over an eel in a water pipe. The suit went back to the time when the bottle washers in the plant of Sunshine Farms, Inc., in the Bronx Terminal Market, could not get water for their work, so that the pasteurization of 8,160 quarts of milk was halted. When an emergency crew from the Department of Water Supply failed to locate the trouble, the company called the Fire Department, which made several unsuccessful attempts to free the pipes. Finally a twelve-inch eel shot out of the fire hydrant. The company sought $698.50 in damages from the city, claiming the city was obliged under its contract to provide an adequate water supply. It was our contention that since the eel was found in the two-inch service line and not in the twenty-inch main supply line (other buildings in the neighborhood were not affected) the city could not be held responsible, since the company had assumed responsibility for maintenance of the service line from which the Fire Department had extracted the eel with its high-pressure pumps. Upon the trial the city's position was upheld and the claim was disallowed.

Eels are troublesome in those water supplies drawing from a lake or surface reservoir that is clear enough to eliminate the need for filtering. Occasionally an eel makes the long journey down the Delaware Aqueduct and gets into the New York City system. Kittery, Maine, found the eels so troublesome that it has installed a special "eel filter" consisting of multiduct strainers that catch them before they get to the distribution system. These strainers have virtually ended all troubles caused by the eels. In fact, one customer has notified the Water Trustees of that city that the water is much better because of the new "filter plant."

Manhole-Cover Robbers

THOSE terms, "train robber," "bank robber," "grave robber," or the baseball fan's unvarnished "robber" headed in the direction of the nearest umpire, has to make room for another from the water-works men. L. A. Jackson, Manager-Engineer of the water works at Little Rock, Ark., reports a "manhole-cover robber" operating in his area. Approximately 75 of these big cast-iron covers, used for manholes along the 33-mile pipeline connecting the city's filtration plant with Lake Winona, disappeared last year. Replacement came to slightly more than $4,000.

Theft of these covers is going to be harder in the future, because Mr. Jackson has instructed his crews to weld all covers in place. To do the work he purchased a Pauling & Harnischfeger arc welder. It is also used for general work at the source of water supply, some 42 miles from Little Rock.

Oklahoma City's Lake Hefner

When Oklahoma City, Okla., built Lake Hefner to insure an ample supply of water, it did not overlook the recreation feature. Here is a portion of the boat dock that was built as the new water-treatment plant went up. Superintendent M. B. Cuningham is now in charge of water and sewerage, as well as boating.

Public works construction is financed by the taxpayer's dollar. Construction by contract is the best way to assure the taxpayer that his dollar is economically spent. Here are the reasons why:

1. **GUARANTEED COST** . . . Cost of the project is guaranteed before construction starts.

2. **GUARANTEED QUALITY** . . . Quality is guaranteed in accordance with plans and specifications.

3. **COMPLETION ON SCHEDULE** . . . The general contractor has the financial incentive to complete the project on schedule.

4. **FREE AND OPEN COMPETITION** . . . Lowest possible cost is secured through free and open competition between competent general contractors.

5. **PROPER PLANNING** . . . The detailed planning required by skilled architects and engineers before bids can be taken assures a properly planned project.

6. **CENTRALIZED RESPONSIBILITY** . . . The contract method centralizes responsibility for construction in the general contractor for maximum efficiency.

7. **NORMAL BUSINESS CHANNELS** . . . Experience has demonstrated repeatedly that the construction industry through its normal channels can fulfill public needs more economically and more rapidly than is possible by any other means.

Since its inception 30 years ago, THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA has maintained an unceasing effort to give the construction-buying public the most for its construction dollar.

To the Contract Method of Construction the 5,300 general contractor members of THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, performing more than 80% of the nation's contract construction, bring Skill, Integrity and Responsibility—the result of long years of experience in their field.

In the hands of these contractors the taxpayer's dollar brings the greatest return in construction.

AMERICA PROGRESSES THROUGH CONSTRUCTION—
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SKILL, INTEGRITY, RESPONSIBILITY IN CONSTRUCTION OF BUILDINGS, HIGHWAYS, RAILROADS, AIRPORTS, PUBLIC WORKS

Street Construction & Maintenance

Gasoline Tax Spending and the City Street

IF YOUR city does not share in the state gas-tax funds to help maintain its street system, it is being shortchanged. Your streets earned a portion of those funds. They have every right to use them.

Total motor vehicle travel before the war was divided almost evenly between rural roads and urban streets. During the war, when travel was restricted, this ratio was disrupted, but responsible estimates for the years following the war indicate that the urban-rural components are again about equal. In other words, urban streets carry about half the traffic. But how many share in half the gas-tax funds? Or a quarter —or even a tenth?

To keep the picture in balance, one should keep in mind that this 50% of travel takes place on a network of streets whose mileage is only slightly more than 8½% of the total road and street mileage in the country. This indicates clearly that while the mileage is relatively small, the concentration of traffic on it is tremendous and maintenance is exacting. Also, construction, maintenance and operation in urban areas are always expensive and complicated—far more difficult than in the open rural areas.

The rural highway is always more entrancing than the commonplace city street. And no one would question that it plays a vital part in the economic life of every community. But by the same token no one should question the equally vital role of the network of streets within our cities that keeps our economic life flowing.

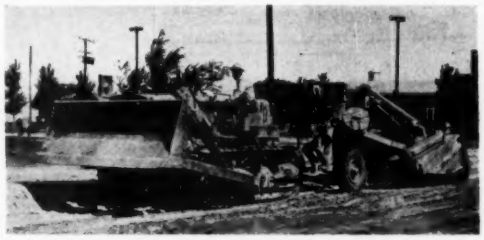
From the standpoint of cold logic, the cities have every right to share more adequately in the public revenues that traffic on their streets creates.

To get these funds, one must present —and continue to present—these logical arguments to those who enact the laws that could make this fair distribution of funds possible.

Scarifier Tooth Scratches Out Paving Blocks

Two heavy scarifier teeth welded to the lower outside edge of this Tracto-Shovel made it a simple matter to remove Belgian paving block from New York's Washington Bridge across the Harlem River. Before the scarifier teeth were added, the tractor did a fair job, but the sides of the bucket would catch on the blocks and prevent penetration except that afforded by the teeth. After adding the scarifier teeth, the blocks came out directly ahead of the bucket edge and eliminated interference between the bucket edges and the blocks. Now the HD-5G is able to get a half to three-quarter load every time.

Heavy Equipment Keeps Cost Down



Last year, El Paso, Texas, completed more than 50 blocks of paving, and graded many more than this in preparation for paving. Important in this work is heavy-duty equipment, such as this LeTourneau Carryall scraper. The Caterpillar crawler tractor with its bulldozer blade also sped the work of maintenance and street repair. The attached picture shows it at work grading Cotton Avenue in the vicinity of Bowie High School. The work is performed under the supervision of J. T. Schwartz, Street Commissioner, who reports to Martin F. Bauman, City Councilman.

Don't use the Taxpayers money for well sites

See How Boise Saved. There's actually a pump delivering 950 gpm against a 240 foot head at this Boise, Idaho, intersection. Cars drive over it... space is saved ... taxpayers' dollars are saved. Learn how you can save with the exclusive BJ Submersible.

There's no need to invest in additional real estate just for well sites. Now you can put your well at the most advantageous location by using the exclusive BJ Submersible Pump. Designed to operate completely underground, a BJ Submersible can be installed anywhere ... under streets, park lawns, alleys, parkways, airport runways, or in river beds ... wherever you desire to locate the well.

The precision-assembled BJ Submersible is an oil and mercury sealed motor-pump unit suspended in the well by the discharge pipe. The close-coupled motor and pump are sealed in the well against contamination and operate *completely submerged.*

Suitable for any well-depth, a BJ Submersible can be installed anywhere. Operates noiselessly. No pump house is needed. The installations are tamperproof. And a Submersible provides unique operating economies during its lifetime utility. Over 80 cities have proved the economy and dependability of these pumps. Write today for complete information.

BJ SUBMERSIBLE PUMPS

NEW SUBMERSIBLE COLOR MOVIE... See how the patented features of this outstanding design make possible the operation of these motor-pump units totally submerged in the well. Available for group meetings of engineers, etc. Write for details.

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Sewerage and Sewage Treatment

More Liberal Federal Laws Asked

MICHIGAN cities have asked that the federal Anti-Pollution Act No. 845 be redrafted to make it easier for them to comply with stream-pollution-abatement orders. Specifically, they asked for a broader interpretation of the term "municipality" to include all political units facing pollution-abatement orders. It asked also that the amount available for loan be increased from $250,000 to $5,000,000 with interest at 1%, and that the loans be made callable for any period up to 30 years.

The resolution formed part of the action of the Michigan Municipal League meeting held in Bay City recently. Full text of the resolution is as follows:

PETITION TO THE CONGRESS
OF THE UNITED STATES

WHEREAS, many of the cities of Michigan are faced with the necessity of constructing sewage-disposal plants and such necessary sewage-collecting systems that would make the disposal plant more effective and economical; and

WHEREAS, these projects will impose a terrific burden on the taxpayers of these cities in Michigan; and

WHEREAS, the amount of these taxes might invite financial disaster to these cities,

BE IT THEREFORE RESOLVED that the undersigned cities of the State of Michigan petition the Congress of the United States to amend federal Anti-Pollution Act No. 845 controlling sewage disposal in streams, and that the Congress of the United States appropriate such sums as the act and amendments would require so that funds would be available to Michigan cities under the following provisions:

1. Change the provisions of the act that qualify municipalities eligible for aid under the act to provide that all cities, villages or other political units as designated under the law of Michigan facing orders by stream-control commissions or other similar bodies be eligible; and
2. Change the section of the act which provides for loans to the above cities, villages, or other political units up to $250,000. Total amount should be at least $5,000,000 at interest rate of 1%. The amount to be loaned to include the total cost of the treatment plant, and the sewers necessary to bring the sewage to the plant, and the discharge of the effluent from the plant.
3. Add the provision that the loans be made on a callable basis for any period up to 30 years.

AND BE IT FURTHER RESOLVED, that the RFC be instructed to loan money at the rate of 1% for the above purpose.

AND BE IT FURTHER RESOLVED that the Governor of Michigan and the Director of the State Stream Control Commission be presented with copies of this resolution and that they be asked to serve as members of the committee to take the proposals to the Congress.

AND BE IT FURTHER RESOLVED that until the committee as proposed has an opportunity to function by bringing the petition for amendments to the federal act to the attention of the Michigan delegation in the Congress, and until the Congress has a reasonable time to act on the proposals, that any plans for financing these projects by any other means be held in abeyance.

Rubber-Covered Impellers Cut Pump Maintenance

IN the past, the Gary, Ind., sewage-treatment plant used to set aside more than $4,000 every three years for the replacement of pump impellers and wearing rings. Now the cost for this same period is less than $350.

Rubber coating on the impellers made the difference, Superintendent W. W. Mathews has found. In his annual report, he tells that one of his Worthington raw-sewage pumps was operated as much as possible to give a continuing test of its rubber-covered impeller. After more than 9,000 hours of continuous operation, he discovered that the impellers were still well coated with rubber except at their leading edges. The edges were exposed back to the hub. Adjacent to this leading edge, the metal of the impeller blades was also exposed for a maximum of a half inch.

On the basis of these tests, he plans to cover all pump impellers with rubber in the future as they are being installed.

Large quantities of grit in the sewage, which amounted to 10.52 cubic feet removed per million gallons in 1948, caused excessive wear on pump impellers.

Illinois Passes Anti-Pollution Laws

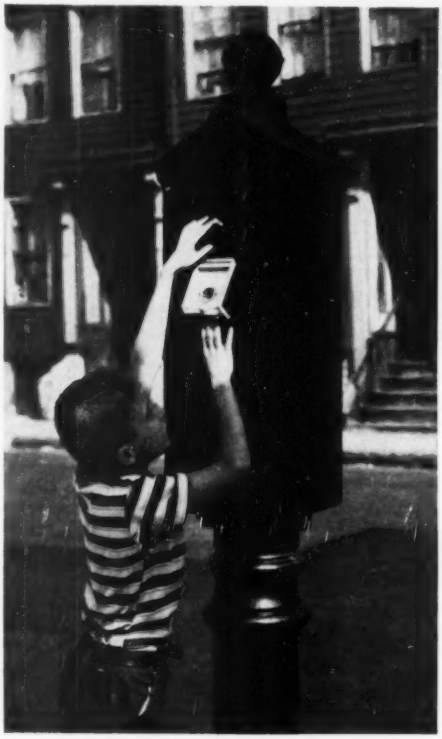
THE Illinois State Sanitary Water Board has another clean-up tool in its kit to use in its stream-pollution-abatement work. A new bill, recently passed by the Legislature and signed by Governor Adlai Stevenson, enables the Water Board to secure court injunctions to prevent the pollution or threatened pollution of state streams. It also requires trained operators of sewerage systems whose qualifications are approved by the Board.

Passage of the legislation was hailed by Robert C. O'Hair, president of the state Izaak Walton League, as a major step towards controlling the state's stream pollution.

Heavy-Duty Sewer Cleaning

Brickbats and broken tile were causing the trouble in this length of sewer in Long Beach, Calif., so the Department of Public Service brought out its big Sidu ball and flushed them out. Sewer cleaning is one of the responsibilities of Sydney Preen, Superintendent of Construction and Maintenance at Long Beach.

PROMPTNESS SAVED A LIFE



TRADE MARK
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Prompt use of

GAMEWELL
FIRE ALARM BOXES

saves human lives
and property

Joseph Golden, 10 years old, shows how he sent the alarm. Joe had been taught in school the purpose of the box and how to use it. When an emergency occurred, he acted promptly.

WOMAN'S LIFE SAVED

An elderly man was burned to death and his widowed sister, trapped by smoke and flames on the top floor of their South Boston home, was overcome by hysteria today.

The dead man is Patrick F. Sullivan, 71, a retired New Haven Railroad clerk, in whose kitchen on the second floor of the house at 152 H St., South Boston, the fatal fire started shortly after 9 a.m.

At City Hospital being treated for hysteria is Mrs. Helen Wall, 70, a widow and Sullivan's sister. Fire Lt. John O'Mara of Ladder 19 and members of his crew rescued her when they found her crouched on the top of the back stairs of the house. She lived on the third floor.

The alarm for the fire was sounded by Joseph Golden, 10, of 457 East 6th St., South Boston, who saw smoke pouring from the house and ran to the nearest fire alarm box.

BOSTON GLOBE

We invite your inquiry

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IN CANADA: NORTHERN ELECTRIC COMPANY, LTD., MONTREAL

Public Safety

One Building Houses All Los Angeles Police Activities

LOS ANGELES may revolutionize police procedure throughout the country through the design of its projected Police Facilities Building. It will be five stories high, cover an entire city block, and contain more floor space (559,000 square feet) than the largest office building in Los Angeles. Except for a few geographical patrol divisions, all the various departments of the municipal police department—until now, scattered among half a dozen different buildings, often miles apart—will be brought together. It is hoped that the new $9,500,000 building will represent a considerable saving to Los Angeles taxpayers by reducing the operating overhead of police department administration.

Among the features that make the building unique are a garage of almost two acres to accommodate and service more than 600 police cars; a completely equipped auditorium and stage for show-ups and assemblies; underground squad-rooms and lockers for the officers of the metropolitan, traffic, and central divisions; and such modern refinements as a helicopter landing field on the roof.

Entrance will be on street level, with no imposing flight of stone steps. A spacious, lavishly planted forecourt, with a pool and occasional pieces of modern statuary, will add to the informal atmosphere. All departments of concern to the general public—bureau of missing persons, traffic, information desk, etc.—will be on street level.

Also on the first floor, though reached by a separate side entrance, will be the three courtrooms where misdemeanor cases are heard, with the misdemeanor jail and yard immediately adjacent. The juvenile detention quarters, entirely apart from the jail area, is designed to emphasize rehabilitation, with steel-casemented windows obviating the necessity of bars.

On the second floor are the record and identification division, the detective bureau, the felon's jail and the 600-seat auditorium, the stage of which can be immediately converted to a show-up gallery by the dropping of a screen. The third floor contains the statistical unit, the personnel-training department, the cafeteria and lounge for off-duty personnel, and the women's jail. The scientific-investigation and special-service divisions are on the fourth floor, with the fifth devoted to executive offices for the chief of police, bureau chiefs, and department heads. All interior details and appointments will also be carefully supervised by the architects, Walter Wurdeman and Welton Becket, and the firm of Kaufman & Stanton. W. A. Worton is Chief of Police.

Fewer and Better Police Through Modern Equipment and Higher Standards

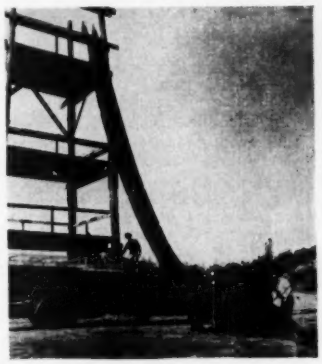
PROTECTION of life and property depends on effective direction and distribution of police manpower and equipment. This, in turn, requires freedom from corrupt influence. The material below is from a report presented at the annual conference of the Governmental Research Association at Bedford, Pa., September 7 to 9, 1949. The group chairman was Bruce Smith.

We seek a steadily rising level of police protection and general police service, and we believe that this can be attained through fewer and better police. We have no faith in mere numbers, and we ask our fellow citizens to bear in mind that their lives and property can never be made more secure by multiplying the number of politically sponsored, ill-trained, and undisciplined policemen. American communities have provided more mechanical and electronic aids for their police than all of the rest of the world taken together; but we still need to insist upon higher standards for the rank and file.

We urge police and the communities which they serve to shift the emphasis in law enforcement from quantity to quality. We ask them to test and consider the advantages and economics derived in many cities from one-man crews in patrol cars; to protect all but the most hazardous school crossings by means of schoolboy patrols, volunteer school employees, or part-time guards; to provide non-police employees for all clerical, property-maintenance, and technical duties in police forces; to avoid costly overspecialization among the rank and file; to recognize that many district stations have been rendered obsolete by the radio-directed police patrol car and that such stations are a major source of avoidable waste in our largest cities; and to place our police pension systems in a joint contributory basis with full actuarial reserves, lest American communities be confronted by accrued pension obligations which they are ill-prepared to meet.

It appears to us that the greatest danger to orderly police development, and to the further extension of rapid gains made in recent years, lies in the increasing influence of police-employee lobbies at city halls and state capitals. Unless these self-seeking groups are brought under effective control, there can be no enlargement in popular support for police operations; and without such support—in witness boxes, and on grand and petit juries—the future of law enforcement in America will continue to be clouded by doubt and uncertainty. We rest our confidence in that future upon the rising generation of policemen who are the police administrators of tomorrow.

Pacific Coast Fire Chiefs Biggest Division of IAFC



"Rescue" just effected by use of Eastman Evacuator before the September convention of the Pacific Coast Inter-Mountain Association of Fire Chiefs at Pasadena, Calif.

JUST before entraining and enplaning for the 76th Convention of the International Association of Fire Chiefs in New Orleans, the Pacific Coast Inter-Mountain Association of Fire Chiefs held its 54th convention in Pasadena, Calif., September 18 to 21. With its 1,302 members, the Pacific Coast group is the largest division of the International Association. Chief William Fitzgerald of Seattle is the new president. Chief William J. Taylor of Burbank, Calif., is first vice-president, and Chief William Batchlor of Pendleton, Ore., was elected second vice-president.

Street Cleaning and Refuse Disposal

Garden City, N. Y., Refuse Collection Practice

TO DISPOSE of the refuse from Garden City, N. Y. (population 15,000), the Department of Public Works uses a total of 30 men, including the foreman. These include 8 truck drivers, 14 collectors, 5 incinerator operators, one equipment operator, and a dump laborer.

This crew provides a service of collecting garbage three days per week from the rear yard, ash collection twice weekly in winter and once weekly in summer from the basement, and one weekly collection of rubbish from the property line. It also makes a daily collection from the business district.

The operations require a fleet of nine collection trucks, all but one having enclosed bodies and most having special loading and compaction features. The fleet covered some 74,000 miles during the year.

For rubbish collection, the crews use a 3-ton Federal stake-body truck because of its ability to handle bulky material.

Collection of other refuse is handled by eight covered trucks, one being held in reserve to meet breakdown emergencies. Two, on Federal chassis, were designed in the Garden City shops. Two, on Dodge chassis, carry Elgin bodies without compactors and hold 8 cubic yards. Three, on Mack and Federal chassis, use the Elgin 15-yard truck with a compactor. One is a Gar Wood Load-Packer on a Mack chassis.

All garbage and combustible rubbish are incinerated in the Garden City plant with a capacity of 100 tons per 24 hours. During the year the plant handled, on a revenue basis, refuse from the neighboring town of Hempstead. One of the three furnaces was completely rebuilt during the year. Noncombustible rubbish and ashes are disposed of by controlled dumping. Quantities handled for the year totaled:

	Tons
Ashes	1,201
Garbage	5,893
Rubbish	4,741
Logs and Brush	1,294
Total	13,129
Incinerated, village	6,317
outside	2,116
Controlled dumpings	6,813
Salvaged	641

The work is under the general supervision of Allan Rogers, Superintendent of Public Works. Theodore Davis is foreman of the Sanitation Division.

Alley Trash Baskets

DELPHI, Ind., uses huge metal trash baskets to help keep alleys clean. These are placed in strategic spots in the alleys of the business district, and are used to collect all trash except ashes and garbage. They are loaded quickly by a truck-mounted crane. Clyde Robbins worked out the mechanics of the plan; he is Street Commissioner and Water Works Superintendent. Charles Harner is Chairman of the City Council's Street Committee, and Mayor Charles A. Wood heads the city administration.

Sand Drums Set Out in November

ALTHOUGH it was a mild winter last year, officials in Washington, D. C., took no chances. Here in front of the Nation's Capitol is one of the 125 treated-abrasive containers in the city. Mr. W. A. Xanten, Chief of the Sanitation Department, places the big yellow drums on the street in November. The sand is then treated with calcium chloride to keep it from freezing, and to make the abrasives more effective on the road. Citizens make good use of the drums, for the containers must be filled at least five times during a normal season.

New York City Adopts Mechanical Loaders

IN the past year New York City has added 562 mechanically loaded refuse-collection trucks to its Department of Sanitation fleet. Of these, 400 carry Gard Wood Load Packer bodies, 200 on GMC chassis and 200 on Autocar chassis. In addition, 100 of the manually loaded, 22-yard, box-type trucks have been reconstructed by installing Gar Wood tail gates; 62 additional trucks have been rebuilt by equipping them with Rotopac tailgates.

Tests by the Department of Sanitation disclose that these mechanical loaders make it possible to put 1½ to 3 times the refuse in the truck than is possible when using the old escalator-type body.

Buy Christmas Seals

NEW

A "Caterpillar" power package small in size— low in cost— big in production

Price of a standard D4 Tractor is $4425; No. 4A Bulldozer is $1380; No. 40 Scraper is $2975; No. 44 hydraulic control for use with No. 40 Scraper and No. 4A Bulldozer is $525, f.o.b. Peoria, Illinois, subject to change without notice.

HERE'S a complete power package made to order for municipal earthmoving jobs. It's the reliable "Caterpillar" Diesel D4 Tractor teamed up with the No. 4A Bulldozer and the new "Caterpillar" No. 40 Scraper. The unit shown here loads up to 4½ heaped yards in less than a minute — handles 36 cubic pay yards per hour on a 500-foot one-way haul. It's a fast, economical tool for road improvement, sewer trenching and backfilling, sanitary fill work, snow removal, stockpiling or handling aggregate. Among its advantages are:

1. Low first cost and low operating cost, coupled with high production ability.
2. An all-"Caterpillar" team. One manufacturer—one dealer.
3. All-hydraulic. 'Dozer or scraper put in use by a handy changeover valve next to operator. Scraper can be quickly disconnected by one man.
4. Scraper blade designed for grader-smooth finishing.
5. 'Dozer-type ejection on scraper pushes load forward and under blade for smooth spreading.
6. Rear wheels ride inside the cut, allow working close to vertical banks.
7. 'Dozer blade can be angled or tilted to suit all conditions.

Get the facts about this money-saving unit. See your "Caterpillar" dealer or mail the coupon for full information.

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No guesswork when you lubricate with Texaco air compressor oils. There is a complete line of them so that, *regardless of your operating conditions,* you can be sure of clean valves, free rings, open ports and clear air lines. Here's the set-up —

For regular service, Texaco straight mineral oils.
For water conditions, Texaco compounded oils.
For rust prevention, Texaco rust-inhibited oils.
For severe service and elimination of carbon and gum troubles, Texaco heavy-duty oils.

All are designed to give you greater operating efficiency . . . prolong compressor life . . . reduce your maintenance costs.

To be sure of getting the right lubricants for your compressors, let a Texaco Lubrication Engineer help you select them. Just call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

LONGER LIFE FOR OPEN GEARS

Lubricate open gears with Texaco Crater X Fluid. It goes on as a liquid, then quickly forms a tough, long-lasting film that absorbs noise, shock and wear. Gears last much longer, with this economical protection, easily applied by brushing, spraying or pouring.

TEXACO

TEXACO Lubricants and Fuels
FOR ALL CONTRACTORS' EQUIPMENT

Get This Literature – Free!

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write directly to the manufacturers, or circle the identifying numbers on this coupon and mail it to THE AMERICAN CITY MAGAZINE, 470 Fourth Ave., New York 16. We will see that catalogs are sent to you without expense or obligation.

11/49

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Name ..... **Position** .....

Address .....

One-Man Chain Saws For Big or Small Jobs

490 The gasoline-engine-driven chain saw made by the Homelite Corp., 111 Riverdale Ave., Port Chester, N. Y., are light enough to be carried by the one man required to operate them. They accomplish the jobs of felling, bucking, notching, and undercutting, and operate close to the ground. Ask for Form L-904-8-49.

Mulched Autumn Leaves Fertilize the Soil

491 The ideal way to utilize the rich plant food value contained in autumn leaves is to leave the pulverized particles on the ground. And by using the Mow-Master Grind-a-Leaf you eliminate the problem of hauling the leaves to the incineration area. Write for an illustrated folder to the Propulsion Engine Corp., 7th St. and White Eagle Rd., Kansas City 15, Kans.

Load a Ton a Minute

492 The Truck Loader made by the Heil Co., Dept. 4399, 3043 W. Montana St., Milwaukee 1, Wis., mounts on a dump truck, picks up its load in front of the truck, swings over the cab, and dumps into the rear of the truck. A ton a minute is its rate and the power take-off is supplied as part of the unit.

Septic Tank Cleaning Can Be Sanitary

493 The O.S.C. Sanitary Service Operator, described in Bulletin 7-ST-11, banishes open tanks, diaphragm hand pumps, and shovels in the cleaning of septic tanks. And the machine can clean a 1,000-gallon tank in 20 minutes. Write the Gorman-Rupp Co., 343 N. Bowman St., Mansfield, Ohio.

Dump a Truck Load In 15 Seconds

494 The Brooks Load Lugger will hoist, dump, or lower a fully loaded truck body in 15 seconds. With such a unit, materials are loaded directly into Brooks bodies, eliminating re-loading. Ask for literature, the Brooks Equipment & Mfg. Co., 1955 Davenport Rd., Knoxville, Tenn.

Stabilize Clay Roadbeds With Lime

495 The use of hydrated lime for stabilizing heavy or sticky clays prevents the clay underneath the road surface from swelling during the rainy seasons and from drying out during the summer to cause sinking of the road base. For the whole story, write for a brochure to the National Lime Assn., Washington, D. C.

Paint Your Pool With Rubber

496 Phelan's Hydroflex rubber-base finish gives beauty and low-cost upkeep to municipal pools. Elasticity and durability enable it to maintain its color under tropical sun or winter frost. The pool is easier to clean because algae cannot cling to the satiny tile surface. Write for a folder to the Phelan-Faust Paint Mfg. Co., St. Louis 11, Mo.

Oxygen Inhalator Sent on Trial

497 The Scott Aviation Corp., 191 Erie St., Lancaster, N. Y., will send on approval to municipal officials one of the new Scott Demand Inhalators which provides efficient and portable oxygen facilities for victims of smoke or fumes. Your money will be refunded within ten days if you are not completely satisfied. Further information about this trial offer can be secured from the manufacturer.

Wagon Drills For Water-Well Digging

498 A new catalog on Joy wagon drills is available from the Joy Mfg. Co., Henry W. Oliver Bldg., Pittsburgh 22, Pa. Available in light, medium, and heavy-weight models, the wagon drill is completely mobile.

Clean Lawns and Parkways With the Lawn Sweeper

499 The LS-240 lawn sweeper picks up leaves, grass clippings, twigs, stones, and acorns, holding about 6 bushels before the basket needs emptying. With this mechanism there are no piles of leaves to be carted away. Write the Western Tool and Stamping Co., Des Moines 13, Iowa.

Remove Roots from Sewers

500 W. H. Stewart, Inc., Syracuse, N. Y., makes a root cutter constructed with five double cutting edges on top and five double cutting edges on the bottom. The lower knives are rigid; the top are controlled by spring tension so that the top blades are collapsed in passing the root, and then cut the root when the tool is pulled out. For literature about this mechanism and other sewer-cleaning equipment, write the company.

Wrist-Action Chute On Snow Blower

501 The Sicard Snow Master has a wrist-action chute that pack-loads trucks to capacity or casts the snow up to 150 feet to any desired spot. The machine cuts an 8-foot swath through snow, slush, and ice. Write to Sicard Industries, Inc., 753 W. Main St., Watertown, N. Y.

No Corrosion from Salt On Roads

502 When 1% of Banox is mixed with the salt used for de-icing streets and roads, any slush from pure water to the most heavily saturated brines is virtually non-corrosive. Write for full information to Calgon, Inc., Hagan Bldg., Pittsburgh 30, Pa.

City Bookkeeping Simplified

503 With the product of the Friden Calculating Machine Co., Inc., San Leandro, Calif., your municipality's expenditures for figuring work will go down while the speed goes up. Write for information about these calculating machines.

Street Signs

504 The Municipal Street Sign Co., Inc., 777 Meeker Ave., Brooklyn, N. Y., offers a newly designed wing street sign with a one-piece enameled steel frame. The signs can be furnished with either vitreous porcelain enamel sign plates that are guaranteed for ten years, or embossed baked enamel sign plates. The sign's plate size is 6 by 24 inches, or longer if necessary. Detailed specifications and prices on request.

Throw Snow Off Paths

505 A Snow Thrower made by the Maxim Silencer Co., 84 Homestead Ave., Hartford 1, Conn., will throw snow up to 50 feet—no banked-up edges. The machine, described in a bulletin available from the company, bites into snow piled up to 24 inches in depth. A 7.2-hp Wisconsin engine provides the power.

19 Attachments Make Tractor Versatile

506 Using the 5-hp Gravely tractor and its 19 attachments will enable you to do such diversified jobs as small- or large-lawn mowing, spraying, power sweeping, snow and rotary plowing, supplying of compressed air, and rotary sawing. Write for a catalog to the Gravely Motor Plow and Cultivator Co., Box 1173, Dunbar, W. Va.

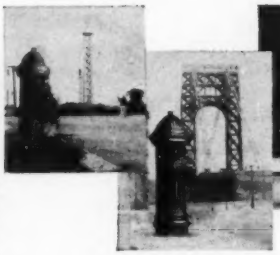
Hydrant's Working Parts Are in a Removable Barrel

507 When repairs on the Mathews hydrant are required, maintenance is simplified because all the working parts are in a removable barrel. Another operational advantage is that the operating thread is not exposed to water, so it is protected from sand and grit. Write for an illustrated booklet to the R. D. Wood Co., Public Ledger Bldg., Independence Square, Independence 5, Pa.

(Additional Brochures Listed on Page 23)

Many are the reasons why Smith hydrants are used by America's leading cities

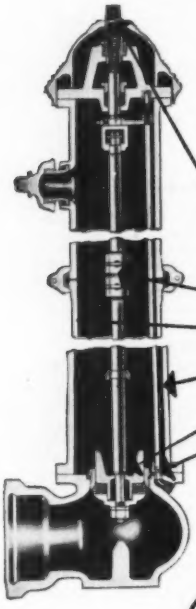
Capitol Building, Wash., D. C.



George Washington Bridge, N. Y.

Independence Hall, Phila.

Empire State Bldg., N. Y.



New York—Philadelphia—Washington—Baltimore—St. Louis—Providence and scores of other cities throughout the nation use SMITH hydrants—and not without good reason. A few of these reasons can easily be seen upon inspection of the hydrant section shown at the left.

1 Working parts easily removed from top.
2 Frangible couplings for collision protection.
3 Maximum flow due to large stand pipe areas.
4 Tapered, frost-proof barrel
5 Compression-type valve.
6 Positive action drain—always closed when main valve is open.

31

GATE VALVES
CHECK VALVES
FIRE HYDRANTS
INSERTING VALVES
TAPPING SLEEVES AND VALVES
WATER SERVICE BRASS GOODS

THE A. P. SMITH MFG. CO.
ESTABLISHED 1877
EAST ORANGE, NEW JERSEY

FLOOR STANDS
INDICATOR POSTS
TAPPING MACHINES
INSERTING MACHINES
PIPE CUTTING MACHINES
CORPORATION TAPPING MACHINES

Stop--Check and Mail

Use the Coupon on Page 21

Boost Water Pressures In Undersize Pipe Lines

508 Electrifugal pumps as boosters constantly maintain normal pressure during both high and low consumption periods. No separate adapters are required because the cast-iron yolk and bracket for mounting are designed as a single piece. Ask for Bulletin 52B50.9E, Allis-Chalmers, 1185A So. 70th St., Milwaukee, Wis.

Six Tools In One

509 The S-6 paving breaker manufactured by Warsop Power Tools, Inc., 347 North 12th Street, Philadelphia 7, Pa., incorporates six power tools: it acts as a breaker, cutter, tamper, chisel, spade, and pile driver simply by changing the tool, which takes a few seconds.

For Minor Repairs On Asphaltic Pavements

510 The Heater-Planer that is made by the Pavement Planing Co., 4338 Sunset Blvd., Los Angeles 27, Calif., should be used for four general conditions: when the asphaltic surface is rough but thick enough to carry traffic without reinforcement; when the street to be resurfaced is so rough that a leveling course must be laid before application of the wearing course; when the street must be resurfaced and existing contours and flow lines must be maintained; and when the street to be resurfaced is covered with a film of traffic dirt which prevents a good bond between the old and new material.

Fire Department Brass Goods

511 The Akron Brass Mfg. Co., Inc., Wooster, Ohio, will send you its Catalog No. 40, a 100-page indexed booklet giving its full line of couplings, nozzles, clamps, and fittings for all kinds and styles of hose.

Bronze Sump Pump Is Submersible

512 No permanent mounting is required for Kenco's submersible bronze sump pump; the motor is hermetically sealed and runs in oil; and there are no floats to stick. About 3,300 gallons per hour at a discharge head of 10 feet is the maximum capacity. Write Kenco, Inc., Elyria, Ohio.

Powered Gumming Machine

513 The Belsaw powered gummer, for grinding the gullets and shaping the back of the teeth of a saw, can be set at any degree or angle wanted and will even up all teeth on a 10-inch rip saw blade and gum it in 15 minutes. Write for illustrated literature to the Belsaw Machinery Co., 315 Westport Rd., Kansas City 2, Mo.

Catch-Basin Cleaner Has Pneumatic Controls

514 The Netco catch-basin cleaner can be mounted on any short-wheel-base truck and removed in 30 minutes to permit the use of the truck for other duties. The bucket of the cleaner comes in two sizes: 1¼ and 1½ cubic feet, and operates through an opening as small as 16 inches. Write the Netco Div., Clark-Wilcox Co., 118 Western Ave., Boston 34, Mass.

Even Grass Cutting

515 The Pearce Air-Lift power mower works on the suction principle; down-grass is raised to its full height so that an even lawn is achieved more quickly. Write for literature to the Pearce Corp., 144 E. Highland Ave., Milwaukee 2, Wis.

Low-Cost Pumping With Hydraulic Ram

516 The Hill hydraulic ram is a modern development of the old principle of raising water by means of the energy of the moving water of which a portion is to be raised. The result is a pumping plant of high efficiency, little or no operating cost, and absolute reliability. Hill rams come in sizes from 1 to 24 inches with delivery capacities to 3,600,000 gpd. Write the Johnson Mfg. Co., Inc., Fox Ave. and Holly St., Seattle 8, Wash.

Acid-Resisting Coat Protects Plant, Equipment

517 Stoncote, the latest product to be introduced by the Stonhard Co., 500 Stonhard Bldg., Dept. AC, 1306 Spring Garden St., Philadelphia 23, Pa., is an acid-resistant coating for floors, walls, and machinery that can be applied with either a brush or a spray. It dries in ½ to 1 hour, and is available in five colors as well as black, white, transparent and aluminum.

Microfilm Records For Speed and Space Savings

518 When documents are microfilmed, nothing is omitted and nothing is incorrectly transcribed. Thousands of documents can be recorded on a roll of film that fits in the palm of your hand, and reference-size prints may, if you wish, be made directly from the microfilm records. White the Recordak Corp., subsidiary of Eastman Kodak Co., 350 Madison Ave., New York 17, N. Y.

Save Time in Setting Fence

519 Anchor fences are set with drive-anchored posts. This saves time and expense in digging post holes, mixing concrete, and waiting for it to dry. Fourteen different types of fences are illustrated in Catalog No. 110 available from the Anchor Post Fence Div., Anchor Post Products, Inc., Baltimore 24, Md.

Turbine Pumps Secure Underground Water

520 Wherever a pure and ample supply of water can be obtained from underground sources, a Deming deep-well turbine proves economical, dependable, and low in cost. The unit is designed so that the flow of water through the pump and up the discharge column continually floods and lubricates all bearings. Write the Deming Co., Salem, Ohio.

Lawn-Mower Sharpener Cuts Costs

521 When your lawn mower is working at top efficiency as the result of sharp blades, mowing costs go down. The sharpener made by the Modern Mfg. Co., 160 N. Fair Oaks Ave., Pasadena 1, Calif., may be used on all reel-type mowers from 5- to 36-inch widths. Ask for Bulletin No. 25B.

Low Maintenance Costs On Parking Meters

522 M. H. Rhodes, Inc., Hartford 6, Conn., guarantees to keep your maintenance costs down to $1.50 per parking meter per year. And the core of this minimal expenditure is in the Mark-Time Safety Link feature. The Safety Link shears when the works are jammed so that pressure cannot be applied to force the mechanism. When the Safety Link shears the handle turns freely and the works remain undamaged. The Safety Link is replaced in less than 10 seconds at a cost of less than 1 cent.

Parking-Meter Advertising Brings in Extra Revenue

523 Three advertising signs per parking-meter post means more revenue to your municipality without taxation. Local businessmen own and operate this medium. For information, write the Parking Meter Advertising Co., 1143 West 6th St., Austin, Texas.

Liquid Snow-Plow Wax Increases Speed

524 Snow-Rem, a liquid snow-plow wax made by Speco, Inc., Cleveland, Ohio, produces a hard, slick surface on plow wings and moldboards and the snow slides off easily. No piling, no breakdowns from overloading. Applied with a paint brush or spray gun, one gallon of wax covers 250 to 300 square feet. The plow is ready for use within 20 minutes after application.

General Alarm Siren Screams Out Warning

525 The new Model 10 general alarm siren made by the B & M Siren Mfg. Co., 765 E. Pico Blvd., Los Angeles 21, Calif., emits a loud, piercing signal that may be used effectively to give warning against fires or other destructive hazards at airports or municipal plants. The motor has over 2-hp capacity.

Convert International Trucks To 4-Wheel Drive

526 With the Coleman conversion units made by the American-Coleman Co., 340 W.O.W. Bldg., Omaha, Nebr., your International trucks can be changed to heavy-duty 4-wheel power, making it possible to haul bigger loads up steeper grades under all conditions.

Motor Oil Cleans As It Lubricates

527 Texaco Ursa Oil X** reduces both fuel consumption and maintenance costs because this oil removes accumulated deposits of carbon, varnish, and sludge from engine parts as it lubricates. Write The Texas Co., 135 E. 42nd St., New York 17, N. Y.

A Good Coagulant Yields a Better End-Product

528 Ferri-Floc, made by the Tennessee Corp., Grant Bldg., Atlanta, Ga., is a coagulant that is effective over a wide pH range, requires a short period for conditioning and settling, has a long filter run, and does not form mud balls. Write for a booklet describing the product and how it works.

Reduce Sewage Odors

529 Since sulfides not only cause the foul smells frequently emanating from sewers, but also induce deterioration of the sewers themselves, sulfide elimination through the use of Cloroben is valid from a purely practical point: reduced sewer-rehabilitation costs. Write the Cloroben Corp., 15 Exchange Place, Jersey City 2, N. J.

Pipe Locator Guaranteed for Life

530 The Model 505 pipe locator manufactured by the Detectron Co., 5637 Cahuenga Blvd., North Hollywood, Calif., is guaranteed for the life of the instrument if instructions for its use are followed. It is designed with a built-in drop handle for ease of operation and more sensitive locating.

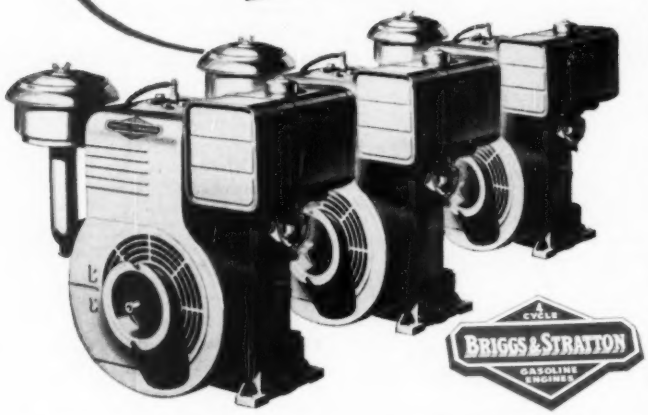
(See Page 24 for More Literature)

...The Latest and Finest in Modern Air-Cooled Power

...From the World's Largest Builders of Single-Cylinder, 4-Cycle Air-Cooled Engines

...3 New Models of

BRIGGS & STRATTON ENGINES



Distinctive in modern design — compact — rugged, without excess weight — built to highest standards of construction and workmanship throughout — these three new Briggs & Stratton engines merit your immediate attention. Available in three new power ranges:

MODEL "9" 3.1 H.P.
MODEL "14" 5.1 H.P.
MODEL "23" 8.25 H.P.

These latest models are representative of Briggs & Stratton precision production — the result of constant engineering and manufacturing progress achieved in more than 30 consecutive years of continuous production and the building of more than 4 million air-cooled engines. Write for complete technical information.

Powered Power FOR INDUSTRIAL CONSTRUCTION RAILROAD AND FARM EQUIPMENT

BRIGGS & STRATTON CORPORATION
Milwaukee 1, Wis., U. S. A.

Free Literature

Use the Coupon on Page 21

Independent Tractions Boost Crane Productions

531 The Koehring 205 swings, hoists load, changes boom angle while it travels, increasing production since move-ups no longer are periods of time during which the machine merely moves from one spot to another. Models similar to the ½-yard 205 style come in sizes of ⅜ yard, 1½ yards, and 2½ yards. Write the Koehring Co., Milwaukee 10, Wis.

Speed on Curves With Heavy-Duty Truck

532 The FWD Maintainer can speed over a 100-foot unbanked circle without skidding because the extra traction of four-wheel drive takes tight curves safely. The movie, *The FWD Story* will be shown at your convenience; write the Four Wheel Drive Auto Co., Clintonville, Wis.

Clear Snow from Walks With a Snow Blower

533 The Snow-Blo is a self-sharpening scoop with a 16-inch mouth that clears walks and driveways where snow has become slushy or packed. Equipped with a 1½-hp gasoline engine, the machine has a multi-blade impeller that throws the snow up to 25 feet from the cleared path. Write for literature to Sensation Mower, Inc., Ralston, Nebr.

Electricity Comes of Age For Water Analysis

534 The Klett Summerson electric photometer for use in water analysis can be used for any determination in which color or turbidity can be developed in proportion to the substance to be determined. Write the Klett Mfg. Co., 179 E. 87th St., New York, N. Y.

Specialized Sprayers For Dust, Concentrates

535 John Bean Division of Food Machinery and Chemical Corp., Lansing 4, Mich., produces a Rotomist that can be mounted on any light truck. The Rotomist releases micron-sized spray particles of concentrate or wet or dry dust, and gives complete coverage with a minimum of drift.

Aerial Mapping Helps Planning, Taxing

536 The Abrams Aerial Survey Corp., 612 E. Shiawassee St., Lansing 1, Mich., will send you details of its aerial surveys and maps from aerial photographs—a prerequisite today in efficient planning of repair, maintenance, and construction in any municipal department.

Accurate Receipting Saves Municipal Revenue

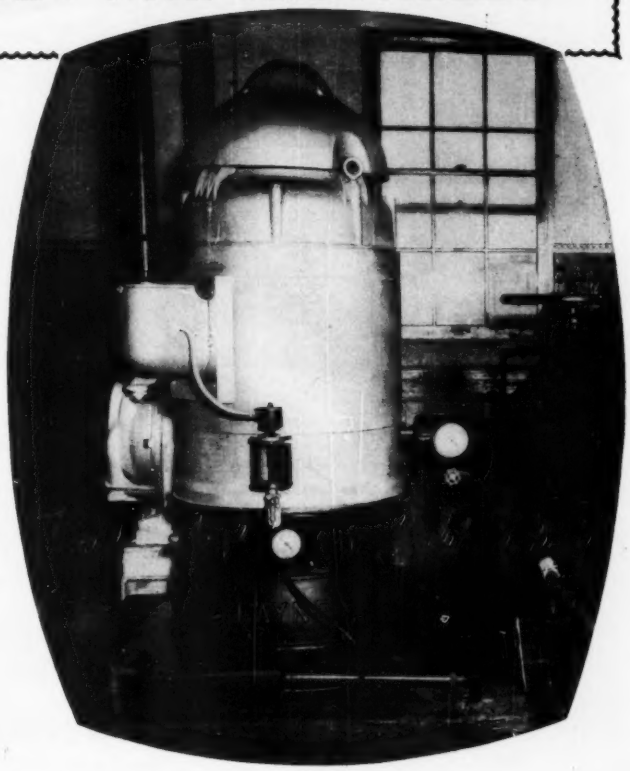
537 The Burroughs Receipting and Validating machine is designed to receipt bills and other documents for taxes, fines, and fees, and to account for all payments so that the taxpayer, the cashier, and the municipality are all completely protected. Write the Burroughs Adding Machine Co., Detroit 32, Mich.

Visible Street-Name Signs

538 The Cataphote Corp., Toledo, Ohio, will send you a catalog of its legible, low-priced street name signs that are designed to dress up a municipality's streets. And the vehicle driver does not have to take his eyes from the road for long periods of time trying to decipher the sign.

(Please Turn to Page 26)

WHAT ABOUT THE WAY THEY ARE INSTALLED



The Layne Method Has Many Advantages

About 98 percent of a well water system is an underground construction project, completely out of sight and inaccessible. Just how good the materials are, or how poor it was built can not be adequately checked by you or anyone in your organization. As for what goes into it, you must depend upon the reputation, integrity and skill of the builder.

First, Layne uses well building methods obtained from nearly three quarters of a century of world-wide experience. And second, everything used: casing, shutter screen, shafting, pump bowls, impellers, bearings, motors and controls are of the very highest quality. Another exceptional advantage is that all Layne well water systems are built to produce greater volumes of water than can be obtained by the conventional type of installation.

For more water at less operational cost, install a Layne Vertical Turbine Pump. Sizes are from 40 to 16,000 gallons per minute. Send for Pump Catalog.

The "Know-How" Counts In Underground Construction

Layne's "know-how" in building the better kind of well water systems assures you of a better job from start to finish. It omits guess work and patch ups in construction errors by the less experienced. After the installation has been completed, tested and accepted, you have the reputation of the long established and highly responsible Layne organization on which you can always depend for service, parts or repairs if and when needed.

For further information, catalogs, etc., address

LAYNE

LAYNE & BOWLER, INC.
GENERAL OFFICES, MEMPHIS 8, TENN.

WELL WATER SYSTEMS

ASSOCIATED COMPANIES—Layne-Arkansas Co., Stuttgart, Ark. ★ Layne-Atlantic Co., Norfolk, Va. ★ Layne-Central Co., Memphis, Tenn. ★ Layne-Northern Co., Mishawaka, Ind. ★ Layne-Louisiana Co., Lake Charles, La. ★ Louisiana Well Co., Monroe, La. ★ Layne-New York Co., New York City ★ Layne-Northwest Co., Milwaukee, Wis. ★ Layne-Ohio Co., Columbus, Ohio ★ Layne-Pacific, Inc., Seattle, Wash. ★ The Layne-Texas Co. Ltd., Houston, Tex. ★ Layne-Western Co., Kansas City, Mo. ★ Layne Minnesota Co., Minneapolis, Minn. ★ International Water Corp., Pittsburgh, Pa. ★ International Water Supply, Ltd., London, Ont. ★ Layne-Hispano Americana, S.A., Mexico, D. F. ★ General Filter Company, Ames, Iowa.

A Clean Sweep

WITH ATHEY FORCE-FEED LOADERS!

With Athey Force-Feed Loaders seventy progressive cities have solved the tough, costly problem of removing Fall leaves and Winter snows from streets and drives.

SNOW LOADING *with Athey Force-Feed Loaders*

In blade-windrowed snow, the Athey Force-Feed Loader, with its moldboards and cutting edges under hydraulically-controlled down pressure, can easily load up to 20 cu. yds. per minute! CLEAN SWEEP LOADING of "nuisance" materials is matched by cost-whacking performance in alley cleaning, salvaging macadam, spoil disposal, oil-mix loading, etc., the rest of the year!

LEAF LOADING, TOO!

On leaf-loading, this self-propelled unit operated by one man can outperform a hand loading crew of 30 men, with a great saving in dollars. Your Athey-"Caterpillar" dealer can deliver your Force-Feed Loader in time for Fall duty! See him now.

Athey APCOR Products

Athey Products Corporation, Chicago 38, Illinois

ATHEY PRODUCTS CORP.
5631 West 65th St., Chicago, Ill.

Please send full details on Athey Force-Feed Loaders and name of nearest Athey-"Caterpillar" Dealer.

Name_____

Title_____

Address_____

City_____ State_____

Athey
FORCE-FEED LOADERS

Check and Mail

Use the Coupon on Page 21

Machine Digs and Loads

539 The Digg-ter made by Dempster Bros., Inc., 8109 Dempster Bldg., Knoxville 17, Tenn., may be used for excavation work or loading from stockpiles. This small shovel works on a hydraulic, simultaneous or independent crowd and hoist action that eliminates tractive effort in loading with wheels. Interchangeable buckets hold 1, 1½, or 2 cubic yards. Ask for Folder No. 8154.

Plastic Marker Signs Are Readable, Long-Lasting

540 The reflectorized plastic signs for traffic signals made by the Columbia Sign & Signal Corp., 10030 Lorain Ave., Cleveland, Ohio, shine in any weather and without headlight glare. Additional qualities are that they are non-corrosive, have color permanence, and cannot be defaced by hammering, bending, or stone-throwing. Write for a brochure.

Street-Lighting Equipment

541 From the Joslyn Mfg. and Supply Co., 20 North Wacker Drive, Chicago 6, Ill., you can obtain information about luminaires, brackets, and steel standards engineered for an attractive appearance, durability, and—most important—efficient street lighting without glare but plenty of light where it is needed.

Don't Destoy Base To Apply Paving Top

542 With the White surface heater, 1 inch of the old bituminous pavement is melted in five minutes. It is then scraped away, leaving a surface upon which a new top may be applied without any damage to the base course. Write for a catalog to the White Mfg. Co., Elkhart, Ind.

Outstanding Fire-Hydrant Features

543 A two-piece operating nut with a special adjustment screw solves the problems of expansion and contraction; the mechanical drain valve can be removed along with all other working parts through the top of the hydrant and no special tools are needed for the operation; the fixed position of the valve arms makes leaking impossible should the standpipe be broken, and unrestricted water flow gives full pressure at extremely low loss of head. Write for information to the Iowa Valve Co., 201-299 N. Talman Ave., Chicago 80, Ill.

Pre-Tested Water Meters Insure Against Defects

544 The frost bottoms in Buffalo meters are pre-tested for breaking pressure by a 400-pound compressed-air test. Write for data about the American bronze case or the Niagara galvanized iron case water meters to the Buffalo Meter Co., 2902 Main St., Buffalo 14, N. Y.

Pre-Stressed Tanks Are Maintenance Free

545 The use of Gunite for repair and construction of tanks, reservoirs, bridges, and buildings is illustrated and described in Bulletin D-2400. An advantage of pre-stressed Gunite tanks is that they are water-tight and maintenance free and may be constructed at ground level, or completely underground with earth covering the dome roof, or in the form of standpipes or elevated tanks. Write the Cement Gun Co., Allentown, Pa.

(More Listings on Page 28)

The 5-to 10-Year Period

1950 1951 52 53 1954 1955 56 1957 958 959 960

IS WHAT PROVES

THE DEPENDABILITY OF A PARKING METER

Will the parking meters you install today earn as much five or ten years from now? And will maintenance costs be as low? The answer to both questions is *YES* provided you install MI-CO Parking Meters. And that's not just sales talk because MI-CO has plenty of installations five years old—some ten years old—which prove their earning capacity does not diminish, and that maintenance costs continue to be low. Here's incontestable proof that MI-CO Meters will be just as productive five or ten years from now as they are today. MI-CO's are simple, rugged, long-lived . . . have fewer moving parts. This accounts for their unusually low maintenance records and high productivity. If you are considering parking meters insist upon performance records over a period of from five to ten years. We'll be glad to submit the records on MI-CO installations up to ten years.

MI-CO METERS, 231 Court St., Covington, Ky.

Division of The Michaels Art Bronze Co., Inc.

★

FRIDEN

. . . the Standard of Lower COSTS

How efficient do you consider your present method of figure work production? The *new* FRIDEN will LOWER YOUR COSTS... setting a new standard of answer production through its *improved* fully automatic operation.

Call your local Friden Representative. Ask for a comparative study of figure costs on your own work. Learn how much you can save, thanks to the *ultra-matic performance* of the *new* FRIDEN. This money-saving demonstration is yours for the asking—without obligation.

Friden Mechanical and Instructional Service is available in approximately 250 Company Controlled Sales Agencies throughout the United States and Canada.

FRIDEN CALCULATING MACHINE CO., INC.

HOME OFFICE AND PLANT · SAN LEANDRO, CALIFORNIA

Get These Free

Use the Coupon on Page 21

Rid Your Streets Of Hazardous Ice

546 The new Seaman Self-Propelled Unit cuts down ruts, shatters ice for easy removal, pulverizes hard-packed and frozen drifts. The rotor is equipped with special ice tines that cut the ice but do not penetrate the street surface. Write for data to Seaman Motors, Inc., 292 N. 25th St., Milwaukee 3, Wis.

Shovel Does Many Jobs

547 With a special 1½-yard snow bucket on the dipper stick of the shovel made by the Schield Bantam Co., Inc., 234 Park St., Waverly, Iowa, you can load up to 6 cubic yards of snow per minute. The machine has proven ideal for storm and utility sewer digging, excavating, and loading.

A Power Lawn Mower For Small or Large Areas

548 The Eclipse Lawn Mower Co., 1810 Railroad St., Prophetstown, Ill., produces a line of lawn mowers that is powered by 4-cycle gasoline engines and capable of handling anything from municipal lawns to large acreage plots.

Swimming Pool Filtration

549 Diatomite filtration in swimming pools, which keeps the water brilliantly clear and clean at low operating costs, is described in *The MODERN Way to Filter Swimming Pool Water*. Write for this booklet to Bowser, Inc., 1396 Creighton Ave., Fort Wayne 2, Ind

When to Use What Paint

550 The Inertol Co., Inc., 480 Frelinghuysen Ave., Newark 5, N. J., will send you a folder that simplifies water-works painting: it describes the paints and includes an easy-to-use chart that lists the most efficient paint for each type of surface.

Locate Steam, Water Leaks

551 The Globe Geophone will help prevent revenue losses by locating steam and water leaks and by doing so without exploratory excavation of pipelines. Investigations have shown that a leak the size of a pin will waste about 300,000 gallons of water in a year. Write for literature on leak detection to the Globe Phone Mfg. Corp., Dept Y., Reading, Mass.

Air-Cooled Engines

552 The 4-cycle, air-cooled engine made by the Clinton Machine Co., Clinton, Mich., has a governor that is fully adjustable, entirely enclosed, and runs in oil. The ignition is dust-proof and waterproof with high-voltage output for extremely quick starting and smooth running at variable speeds. Horsepower is from ¾ to 3.

Three-Sided Advertising On Parking Meters

553 The Meterad Corp., P. O. Box 351, Pasadena, Texas, installs, services, and maintains the three-sided advertising on parking meter posts. The municipality expends no risk, no expense, no trouble; it merely receives the revenue.

Save Money In Asphalt Maintenance

554 *Economical Asphalt Street Maintenance* is the title of the reprint that may be obtained from Maintenance, Inc., Wooster, Ohio, manufacturer of Jennite J-16—a surface seal coat that prevents damage from sunlight, gasoline, oil, and the freezing and thawing of penetrated moisture.

CONSULTANTS
ON INDUSTRIAL MAINTENANCE
MANUFACTURERS CONTRACTORS

MAINTENANCE INC.

CABLE ADDRESS
MINCO
BENTLEY'S AND ALL
STANDARD CODES

WOOSTER·OHIO

SUBJECT: Economical Asphalt Surface Maintenance

ATTENTION: Everyone Interested in Saving Money

Gentlemen:

An article titled "Economical Asphalt Street Maintenance" appeared in the July issue of The American City magazine. Its author was Charles L. Shattuck, Engineer of Asphalt Construction, Department of Public Works, Detroit. Mr. Shattuck is recognized as an eminent authority on the subject.

The contents of this article were of such importance that everyone engaged in this type of construction and maintenance will consider it as up-to-date text book material.

To those who may have missed it we suggest looking up the issue. Or, we will be glad to send you a complete reprint just as it appeared, at your request. We will also enclose additional information on Jennite J-16, the proven surface seal coat that prevents the damaging action of sunlight, gasoline and oil, and the freezing and thawing of penetrated moisture.

Sincerely,

MAINTENANCE INC.

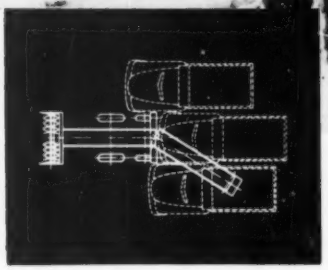
M. Claparols

M. Claparols, Pres.

Barber-Greene

New model 548-A SNOW LOADER

Clears streets fast
Saves up to 75% trucking costs...



Parallel Loading Speeds Traffic—Cuts Loading Time

The 548-A's hydraulically operated Swivel Boom Conveyor facilitates fast loading with least interference to traffic.

In the new 548-A Snow Loader, Barber-Greene offers many features of importance to those responsible for keeping busy streets clear of traffic-bogging snow. The pneumatic-tired 548-A is equipped with the B-G Swivel Discharge Conveyor that reaches over truck cabs . . . allows trucks to travel in same direction, behind or on either side of the loader . . . cuts trucking costs as much as 75% through more efficient loading. Spiral feed assures down-to-the-pavement clean-up of up to 20 cu. yds. per minute. Truck-type, four-wheel drive, and four-speed transmission. Enclosed cab is optional. Ask your B-G distributor about other advanced features.

BARBER-GREENE COMPANY AURORA, ILLINOIS

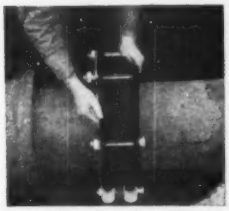
Constant flow Equipment

LOADERS | PERMANENT CONVEYORS | PORTABLE CONVEYORS | COAL MACHINES | BITUMINOUS PLANTS | FINISHERS | DITCHERS

Clean pipe thoroughly — then center brass band over break, bending tab back to lock.

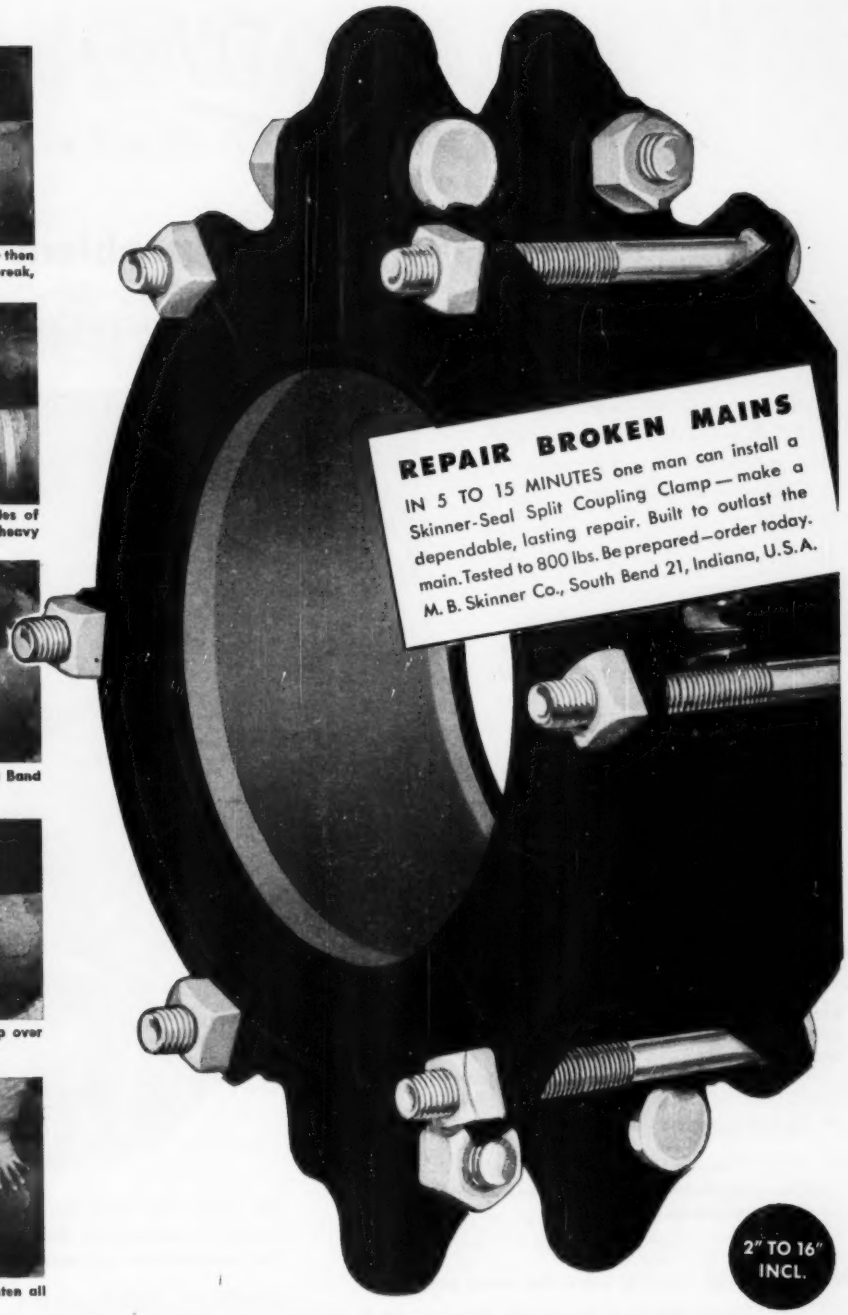
Thoroughly soap both sides of gasket and pipe with heavy soap water.

Center gasket and Monel Band over brass band.



Assemble halves of clamp over pipe and bolt together.

Insert pull bolts and tighten all around evenly.


REPAIR BROKEN MAINS
IN 5 TO 15 MINUTES one man can install a Skinner-Seal Split Coupling Clamp — make a dependable, lasting repair. Built to outlast the main. Tested to 800 lbs. Be prepared—order today.
M. B. Skinner Co., South Bend 21, Indiana, U.S.A.
2" TO 16" INCL.

SKINNER-SEAL SPLIT COUPLING CLAMP

BE READY...

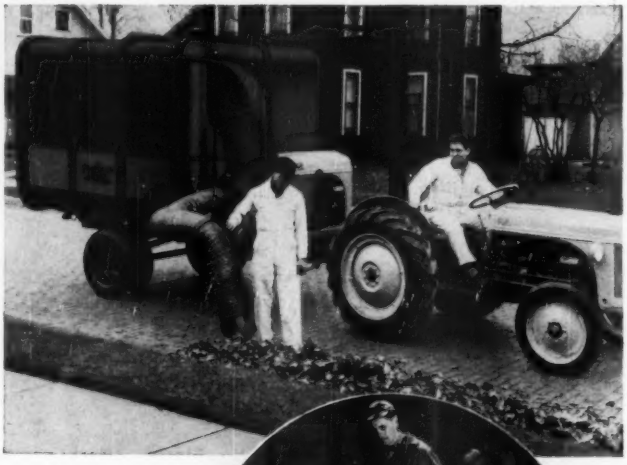
...for the Fall leaf problem

AVOID CLOGGED SEWERS AND SLIPPERY PAVEMENT WITH Good Roads MACHINERY **LEAF COLLECTOR**

If you are ready with a Good Roads Leaf Collector when the leaves begin to fall, you can eliminate the dangerous leaf nuisance efficiently, economically, and quickly.

The two-man-operated Leaf Collector inhales leaves and in the process shreds them into small particles. These chopped leaves are known as "COMPOST," a natural fertilizer which will be begged for by many citizens, for use in their gardens.

This feature is important in cities where there is too great a distance to travel to the dumping site.



FEATURES

FLEXIBLE INTAKE HOSE . . . . . easily maneuverable into driveways, under and around autos, in gutters, around corners and catch-basins and under cross-walks.

RUGGED ROTOR BLOWER ASSEMBLY . . . inhales and pulverizes wet or dry leaves in one operation.

HYDRAULIC SYSTEM . . . . . operates independently . . . makes hook-up and dumping almost instantaneous.

SPACIOUS LITTER CARRIER . . . . . holds blocks and blocks of pulverized leaves and debris.

SPECIAL FILTERS . . . . . keep surrounding air clean and dust-free.

The rubber tired snoot for all purpose leaf collecting (circular illustration) and the simple Hanger Arm unit (top) are standard equipment.

CONTACT YOUR GOOD ROADS DEALER or the factory for further detailed information or a demonstration.

GOOD ROADS MACHINERY CORP. **MINERVA, OHIO**

★★★★★★ SIX NEW STAR PERFORMERS

Brought to You By Allis-Chalmers Since the War

NEVER HAVE SO MANY NEW UNITS OF THIS TYPE BEEN INTRODUCED BY ONE ROAD MACHINERY MANUFACTURER IN SO SHORT A TIME . . . .

Four New Motor Graders

Now a Size to Fit Every Job and Budget!

★ **AD-4** 22,140 lbs. . . . 104 brake hp. . . . GM 2-cycle diesel engine.

★ **BD-3** 19,042 lbs. . . . 78 brake hp. . . . GM 2-cycle diesel engine.

★ **BD-2** 17,772 lbs. . . . 50.5 brake hp. . . . GM 2-cycle diesel engine.

★ **MODEL D** 8,500 lbs. . . . 34.7 brake hp. . . . Allis-Chalmers gasoline engine. A completely new low-cost motor grader with *exclusive* tandem drive. Engineered new from the ground up to bring you BIG grader design and performance advantages.

Note . . . The popular Model AD-3, introduced just prior to the war, set the pattern for all these models. Provides 78 brake hp. . . . weighs 21,835 lbs. . . . has GM 2-cycle diesel engine.

Two New Diesel-Powered Tractors

★ **HD-19** With *exclusive* torque converter drive! Load and speed automatically balanced—up to 25% more work on many applications. Weighs 40,000 lbs. 163 hp. GM 2-cycle diesel engine.

★ **HD-5** Weighs 11,250 lbs. 40.26 drawbar hp.—GM 2-cycle diesel engine. Simple to service, easy to operate . . . more work capacity. A great tractor with a fully matched Allied line.

• • •

These two new units, along with the widely used HD-7 and HD-10 tractors, complete the Allis-Chalmers crawler line.

Ask your Allis-Chalmers dealer for a demonstration

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Originator of the Torque Converter Tractor

CHANGE THE DISEASE-SPREADING DUMP

to a Health-Protecting SANITARY FILL

. . . and do it at lowest possible cost with the DROTT BULLCLAM SHOVEL METHOD!

- LOW EQUIPMENT INVESTMENT—This one machine handles all operations—digging trench, compacting and covering refuse.
- KEEPS REFUSE COVERED—Every day's deposit is covered daily with fresh, clean dirt.
- LAND RECLAIMED—Otherwise worthless areas converted to parks and playgrounds.
- SHORTENS TRUCK HAULS—Sanitary Fills can be operated in or near residential and industrial neighborhoods.
- PROTECTS CITIZENS' HEALTH—Destroys breeding places of flies, rats, mosquitoes and other pests . . . as well as eliminating obnoxious odors and smoke.

Cost data from cities reveal that the Drott Bullclam Shovel Method Of Sanitary Fill is by far the most economical. This one machine handles all operations. Digs the trenches, compacts and covers the refuse, maintains the site. Is also used for other construction and maintenance.

Operated by DROTT POSITIVE CLOSED HYDRAULIC SYSTEM • SMOOTH • QUICK • DEPENDABLE. Keeps dirt and air out . . . keeps oil in! Used successfully on Drott equipment for many years.

FREE

On request; descriptive catalog and list of cities using Drott method. Also cost data on collection and sanitary fill equipment.

DROTT
EQUIPMENT

DROTT MANUFACTURING CORP.
3041 W. WISCONSIN AVE. MILWAUKEE 3, WISCONSIN

YOU GET FOUR FOR ONE

with this **HOMELITE ONE MAN**

Gasoline Engine Driven **CHAIN SAW**

EASIEST HANDLING
FASTEST CUTTING
LIGHTEST WEIGHT
LOWEST MAINTENANCE

It's the Easiest Saw to Handle

It weighs only 33 lbs. complete . . . and is perfectly balanced. It cuts at any angle. Handles any type of cut. And flips . . . in two seconds flat . . . from vertical to horizontal cutting position. What's more, its two simple controls are easily operated by either left or right hand in a normal comfortable position. Yes, and its low vibration plus a spiked bumper plate that permits protection of saw and holds guide bar straight on even the heaviest cuts reduce operator fatigue to nil. Look into this saw now. Write for new illustrated bulletin.

Built and Backed by HOMELITE, Manufacturers of More than 275,000 Gasoline Engine Driven Units.

Send Coupon NOW for NEW Bulletin

HOMELITE CORPORATION

Manufacturers of HOMELITE Carryable Pumps • Generators • Blowers • Chain Saws

111 RIVERDALE AVE., PORT CHESTER, N. Y.

Please send me your new illustrated bulletin on Homelite Gasoline Engine Driven Chain Saws.

NAME.....

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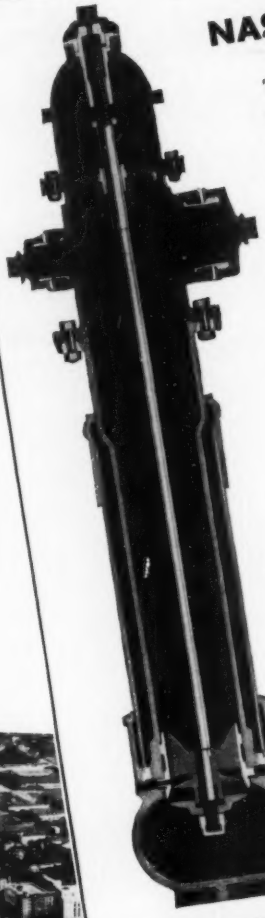
Built and Backed by HOMELITE,
Manufacturers of More than 275,000 Gasoline Engine Driven Units.

NASHVILLE, TENNESSEE



That's the case when a city's fire hydrants are always ready and fit for service. Nashville uses Mathews Modernized Hydrants and they mean *safety plus*.

Even when a Mathews is knocked down by a truck, the unfit-for-service period lasts only so long as it takes to bring up a spare barrel and install it *without excavating*. The removable barrel contains all working parts. The stuffing box plate, cast integral with the head, prevents water from reaching the operating thread to cause deterioration from rust or sand.

Send for full description of this soundly designed hydrant and see for yourself why your community cannot afford to be without its *safety plus* features.

"One of America's Safest Cities"
THE MATHEWS FIREMEN SAY

OTHER MATHEWS HYDRANTS: Main valve true compression type • Head can be turned 360° • Replaceable head, nozzle outlets easily changed • Nozzle levels raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for extra strength, elasticity • Operating thread only part to be lubricated • A modern barrel makes any Mathews good as new

MATHEWS HYDRANTS

Made by R. D. WOOD COMPANY

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

This Million-Dollar Investment Pays Ten Per Cent

The city of Waverly, Iowa, has operated its own electric power plant since 1904. Starting with an investment of $13,400, the operation has been so successful that further investments, now totaling nearly a million dollars, have been made through the years. The record at Waverly offers many suggestions to men in charge of power.

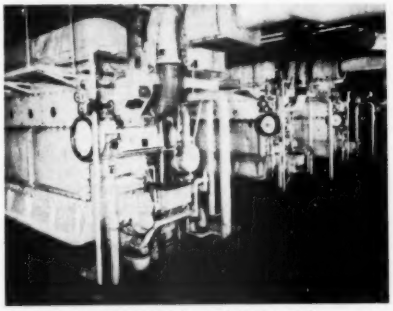
Up to 1937, the power generating equipment at the Waverly plant consisted of three hydro-electric units with a total capacity of less than 500 kw. In 1938, when the demand for more power increased, the city engineers ordered two Worthington EE-5 Diesel-electric generating units of 430 kw capacity each, and one Worthington D-5 Diesel-electric unit of 250 kw capacity. In 1942 a fourth Worthington unit of 720 kw capacity was added. The station's firm capacity at this time was 1310 kw with a maximum possible output of 2045 kw. Local power requirements averaged 1800 kw, therefore this additional capacity was needed as soon as possible.

More Power Needed and No Room for Expansion

The lack of floor space in the station caused considerable concern to the city's engineers, because the installation of an additional Diesel-electric generator would necessitate building an extension, and such an addition was found impossible since the plant was hemmed in by buildings on two sides and a street and river on the others.

So it was decided to supercharge three of the Diesels to meet mounting loads, and this proved to be economical and efficient. The engines had been installed to operate at a speed of 327 rpm, at conversion, the speed was increased to 360 rpm—the speed for which they were originally designed. This supercharging plus the change in speed increased the capacity by 1020 kw, and raised the engines' fuel economy by 1.0 kw per gallon of fuel oil consumed.

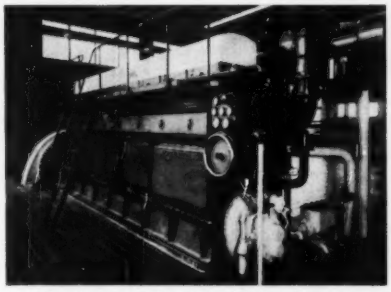
The cost of materials and equipment to convert the engines to supercharged units was about the same as that of a new 1020 kw generator and engine. But a saving estimated at $30,000 was realized by not having the expenditure for building alterations and switchgear units.



One Worthington supercharged SEH-8 and two supercharged SEH-5 Diesel engines at Municipal Power Plant, Waverly, Iowa

New Plant Built to Provide More Power

Still, the power requirement grew, and to insure a safe margin of spare capacity (and also to alleviate flood danger at the old plant), a new plant has recently been completed on high land in the outskirts of town. One Worthington SEH-8 supercharged Diesel-generator with a 1245 kw capacity was installed early this year, and now that this generator is on the line, the largest of the older sets will be moved in with it. Plans call for the balance of the old power plant to remain intact for stand-by and peak load service.



A Worthington SEH-8 Diesel engine shown in the new Municipal Power Plant at Waverly, Iowa

New Equipment Earns Money for Waverly

The supercharged engines have increased the average fuel economy by producing more kilowatt hours per gallon of fuel. Comparison of the fuel cost for the fiscal year ending 1944 (when all engines were non-supercharged) with that of 1949 (after supercharging), with running capacity factors almost identical, shows that for the year ending 1949, 11.1% more kw hours were produced per gallon of fuel oil than for 1944.

The customer is particularly pleased with the results of the Worthington SEH-8 engines. The average fuel production rates, as given in the city's 1948-49 annual report, are as follows:

Engine No. 4 (converted SEH-8) generated 3,088,000 kw hrs and produced 14.48 kw hrs per gallon at an engine running capacity factor of 59.2%.

Engine No. 5 (latest SEH-8) generated 105,600 kw hrs and produced 14.42 kw hrs per gallon at an engine running capacity factor of 45.6%.

The value of Waverly's power plants, generating equipment and distribution system is $942,666.00. On this investment of nearly a million dollars, profits during the fiscal year ending March 1949, after operating expenses, insurance and sales tax were deducted, amounted to $92,522.77—a dividend of 10%.

NEWS

FROM THE PUBLIC WORKS FRONT

AS REPORTED BY THE DEVELOPMENT ENGINEERS, FIELD SERVICE REPRESENTATIVES AND CUSTOMERS OF WORTHINGTON

1

Unique Water Circulating System Foils The Flood

A 70,000 square foot, two-pass surface condenser, with auxiliaries, now under construction for the third unit of The Ohio Public Service Company's R. E. Burger Steam-Electric Station uses the patented circulating water system pioneered jointly by Worthington and the customer's consulting engineer, Mr. George W. Saathoff.

Located on the Ohio River at Dilles Bottom, Ohio, this plant is on ground well above a flood stage which has reached as high as 57 feet above extreme low water level. The new condenser, when completed, will serve a 90,000 kw nominally rated turbine generator. Units #1 and #2, now in operation, are 60,000 kw nominally rated, and each is served by a 46,000 square foot Worthington condenser.

This unique water system permits all major equipment, except circulating pumps, to be located above flood stage with but slight increases in pumping power requirements compared with a low-level plant, and eliminates expensive excavation and substructure costs which would be necessary to locate the condensers in deep pits to maintain normal pumping heads and at the same time keep the turbine generator above flood stage. The long, large exhaust connection piece between turbine and condenser is also eliminated. All circulating and condensate pumps are vertical, with motors above high water, and all pumps are designed to operate completely submerged, if necessary.

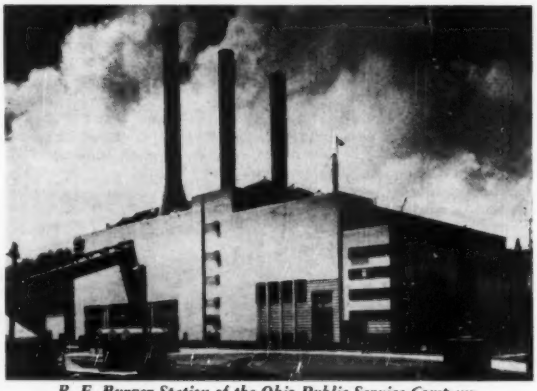
Two full capacity circulating pumps, illustrated in the diagram, are used in series. The primary pump is a Worthington motor-driven HIFLO, submerged below extreme low water. The secondary or booster pump is a Worthington single suction volute MIXFLO mounted directly upon, and driven by, an hydraulic turbine.

Advantage is taken of maximum syphon effect from the condenser discharge drop leg which enters a sealing or control well, from which all of the circulating water passes through the hydraulic turbine. In this way, 75-80% of the static head from sealing well to river level is recovered for useful work. This reduces the burden on the primary pump, with considerable saving in overall pumping horsepower.

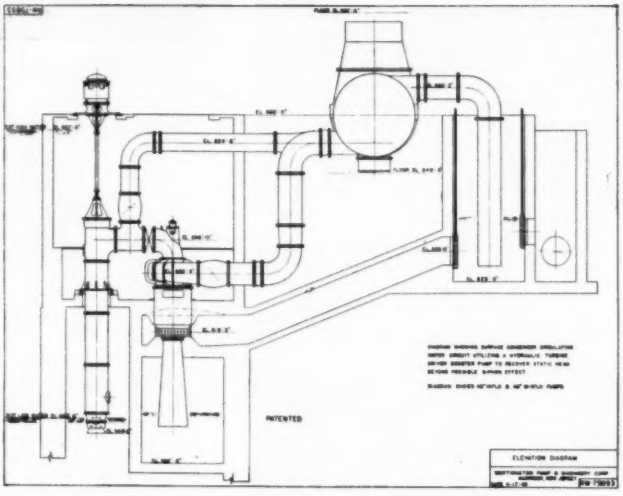
The HIFLO pump, with its high starting head characteristic, is able to deliver enough water to the condenser for starting purposes. The by-pass, shown in the diagram, was omitted for Units #2 and #3, because the HIFLO can pump directly through the MIXFLO. When there is enough water in the control well, the hydraulic turbine is started and the HIFLO and MIXFLO automatically operate in series at full capacity.

The booster pump functions until the river rises to such level as to render the hydraulic turbine ineffective, from which point the motor-driven HIFLO operates alone, producing full capacity under reduced head. Unit #3 will include two half-capacity primary HIFLO pumps which will discharge through a single booster MIXFLO pump, thereby permitting operation of only one primary pump when low water temperatures prevail.

The system is ideal for installations where there is considerable fluctuation in water level and where it is desirable to locate the plant at considerable elevation above the source of circulating water supply for reasons of lower construction cost, accessibility or geographical location.

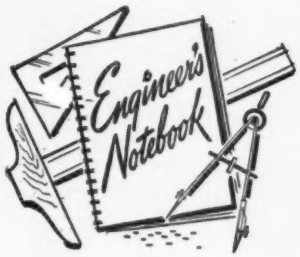


R. E. Burger Station of the Ohio Public Service Company, Dilles Bottom, Ohio



Worthington Pump and Machinery Corporation
Harrison, N. J.

NEWS



Worthington Treats Boilers To Clear Drinks

New Water Treating Plant Protects Evaporator... Reduces Blowdown

A new water treating plant was recently installed in a large midwest central station to protect the evaporator from scale and corrosion, and to reduce blowdown.

Filters Are Backwashed with Clear, Chemically Inert Water

Treatment is by the hot-process lime-soda system which has a normal rated capacity of 6250 gph of treated water deaerated to 0.005 cc per liter at 3 to 5 lbs operating pressure. A 1040 gallon deaerator water storage section and Worthington's exclusive filter wash water reclamation compartment have been made an integral part of the softener tank. This enables the filters to be backwashed with clear, chemically-inert water without disturbing the water under treatment.

Exclusive Hydraulic Agitating System Keeps an Even Mix

Chemical is fed by proportionate decantation from a single chemical supply tank equipped with Worthington's exclusive hydraulic agitating system. This system is designed to maintain a uniform mix within plus or minus 1% in concentrations up to 15% by weight of chemicals to water.

After automatic dilution with low-temperature condensate, the proportioned chemical is pumped to chemical spray lances in the softener by a Worthite centrifugal pump. This delivery pump and its spare have to operate against a 90 ft. total discharge head, because the softener tank was installed quite a distance above the chemical feeder and filters.

Treated and deaerated water is filtered through a battery of three pressure filters, having 5' 6" diameters and 5' 0" vertical straight sides. These filters are equipped with manifold-lateral underdrain systems and Worthington directional-flow cast-iron distribution nozzles and Carbworth beds.

Proportions Sludge Blowdown to Sludge Formation

The backwash line leading from wash water compartment to wash water pump suction is equipped with a venturi rate-of-flow indicator and direct reading mercury gauge. Its return line which runs from the filter to the wash-water reclamation compartment is equipped with a Worthington valve-type sight glass. Chemical proportionment is paced by an orifice-type indicating and recording meter through an adjustable time-interval relay and special decanting gear. An electrically motivated hydraulic all-iron sludge valve is likewise paced for the removal of the sludge from the softener in proportion to its formation.

Chemical Agitation and Feed Stop and Go Automatically

Operating character of the boiler plant is such that make-up requirements to the evaporator may be intermittent. Therefore, the treating plant is designed not only for continuous variable rate operation, but is also equipped with necessary interlocking devices so that chemical agitation and feed are automatically stopped with the discontinuance of treated water use and automatically returned to operation upon the resumption of treated water demand.

Raw Water is Tamed

Raw well water has a total hardness of 300 ppm and a carbonate alkalinity of 320 ppm. Previous experience with water of this character indicated that a temperature rise of more than 20° F would cause scale deposit. Therefore, for protection against scale deposit in the softener tubular vent condenser and possibly on the heater spray valves, the vapor flow from the top of the softener to the vent condenser is automatically controlled by an air-operated valve. This valve is piloted by a thermostatic mechanism, the element of which is mounted in the effluent water box of the vent condenser. In this manner, temperature of raw water passing through the tubes of the vent condenser is limited to 20°F, regardless of the load on the softener.

9-27

Worthington Pump and Machinery Corporation
Harrison, N. J.

37 MILES OF VITRIFIED CLAY PIPE

HANDLES CORPUS CHRISTI POPULATION INCREASES

BELOW SEA LEVEL INSTALLATION

The project, designed and supervised by city engineers under the direction of H. H. Stirman, Public Works Director, and R. L. Otto, Head of the Engineering and Construction Division, drains and sewers Corpus Christi's Lindale Park development of 1200 new homes. It calls for 194,688 feet of Vitrified Clay Pipe ranging in size from 8 to 24 inches in diameter. Vitrified Clay Pipe was specified to resist corrosion from perpetually saturated and strongly electrolytic soil.

NO FOREIGN MATERIAL IN VITRIFIED CLAY PIPE

Vitrified Clay Pipe is not a compound or mixture of materials bonded by chemical agents. It is pure, natural clay fused at high temperatures by an exclusive process called *Vitrification.* Clay Pipe is a permanent, *heat-bonded* material that serves indefinitely without wearing out. Vitrification is the reason why Clay Pipe is acid-proof, rust-proof and cannot crumble or deteriorate.

If You Need Specific Information On A Clay Pipe Question, Write The Details To The Office Nearest You.

NATIONAL CLAY PIPE MANUFACTURERS, INC.

100 North LaSalle St., Room 2100, Chicago 2, Ill.
206 Connally Bldg., Atlanta 3, Ga.
703 Ninth and Hill Bldg., Los Angeles 15, Calif.
1105 Huntington Bank Bldg., Columbus 15, Ohio

Vitrified

CLAY PIPE NEVER WEARS OUT!

C-149-1

Denton, Texas

saves $350.00 per day with NORDBERG power!

The City of Denton, Texas, recently installed two 8-cylinder 3200 H.P. Nordberg Duafuel Engines in the municipal light plant, driving 2500 K.W. generators. For proof of their economical performance, read what W. T. Elliott, plant superintendent, has to say about these two units, which are operating on natural gas:

"... we have checked our fuel cost on the two 3200 BHP Nordberg Duafuel engines for the first six months of operation ... Our records show that in the six months period, we have saved $63,674.00 over fuel oil operation. This is approximately $350.00 per day. With that saving, it is needless to say that we are more than well pleased with our new plant..."

Typical of many other Nordberg installations, the outstanding money-saving ability of these dependable engines satisfies both taxpayers and operating personnel. Write for further details, outlining your requirements.

NORDBERG MFG. CO.
Milwaukee 7, Wisconsin

Two DUAFUEL gas burning engines cut fuel cost over $63,000.00 in six months!

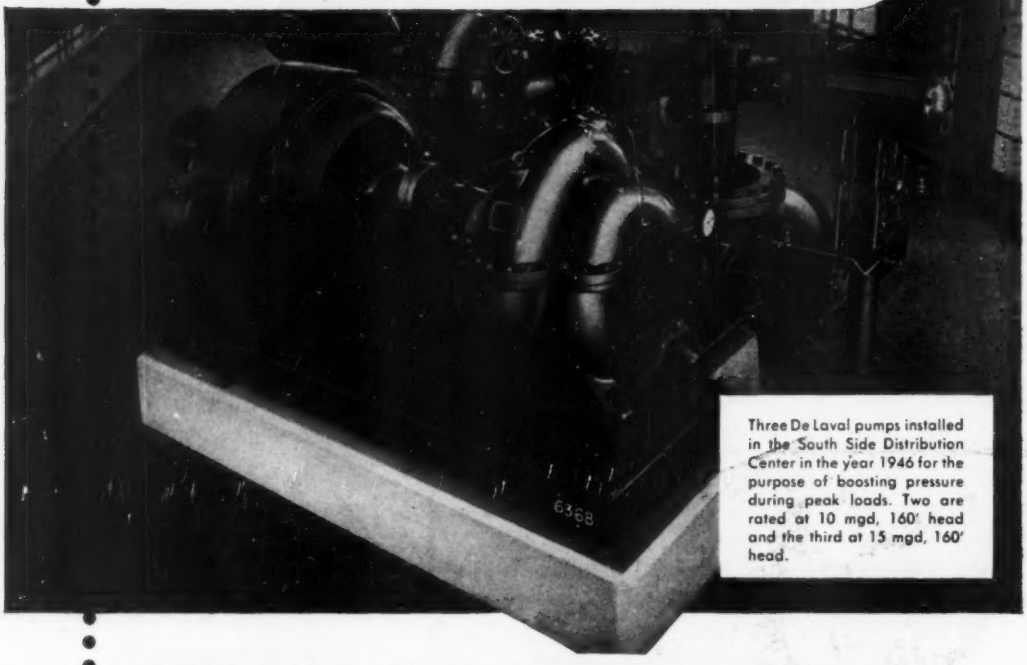
NORDBERG two and four cycle engines are built in a wide range of sizes from 10 to 8500 H.P., including Diesel, Duafuel and Natural Gas types.

P1049

A DIVISION OF NORDBERG

NORDBERG DIESEL ENGINES

FOR THE 7th TIME



Three De Laval pumps installed in the South Side Distribution Center in the year 1946 for the purpose of boosting pressure during peak loads. Two are rated at 10 mgd, 160' head and the third at 15 mgd, 160' head.

FLINT WILL INSTALL DE LAVAL PUMPS

to meet increased water demands

Seven times in a row . . . 1918, 1921, 1923, 1924, 1930, 1946, and now in 1949 the City of Flint, Michigan will install De Laval pumps to satisfy an ever inceasing demand for water. Four low lift and two high lift pumps will be installed in Pumping Station No. 3 later this year and they will give the City of Flint a total capacity of 352 mgd . . . all handled by De Laval pumps.

Here, as in over 78 per cent of America's cities, De Laval pumps have insured complete dependability and high sustained efficiency, year after year. When you are ready to install additional pumping capacity, specify DE LAVAL.

DE LAVAL

DE LAVAL STEAM TURBINE CO., TRENTON 2, N. J.

TURBINES • HELICAL GEARS • CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS • WORM GEAR SPEED REDUCERS • IMO OIL PUMPS

WW-8

Can beauty and utility be one?...

THIS is an important question when you are asked to consider the use of electric substations in your residential areas.

The answer is. . . .

Yes. . . . if General Electric *unit* substations are proposed.

General Electric engineers, working with your local utility, will be glad to show you examples of how other communities are using G-E unit substations in their residential areas, because these units, with their smooth, integrated lines, can be easily landscaped into the surroundings. At the same time, these communities are realizing the many benefits—such as lower power costs and increased reliability—of General Electric power distribution.

Ask your G-E sales representative for a copy of "Unit Substations in Metropolitan Areas" (GEA-5155) or write to *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

221-64

Announcement

THE OTTO GERDAU CO. is pleased to announce the acquisition of the Baltimore plant of the F. Burkart Manufacturing Co., Maryland Fibre Products Division.

This is another step forward by which we acquire expanded and improved facilities which will increase our ability to serve the trade well.

The business will hereafter be conducted from the Baltimore plant to which all inquiries should be addressed. It will be known as –

GERDAU MARYLAND FIBRE CORPORATION

101 Landwehr Lane,
Baltimore 23, Maryland

HAND
STORAGE BATTERIES

EXTRA HEAVY-DUTY*

For Police Radio Cars, Sanitation Trucks, Snow Plows, Sweepers, Emergency Trucks, Ambulance and Fire Apparatus.

*Heavy, ultra low antimony plate frames . . . hand-pasted, tank-formed . . . heavy glass mats . . . acid and heat resisting microporous rubber separators . . . splash decks . . . double weight cell covers . . . highest grade hard rubber containers.

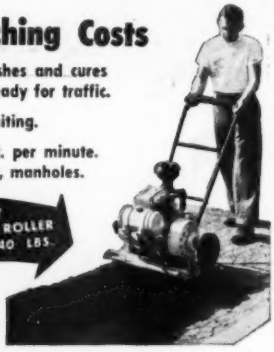
Hand Laboratory, Nyack, N. Y.
FOUNDED 1930

Cut Your Patching Costs

Heated plate impacts, finishes and cures hot or cold materials — ready for traffic.

No roller, no water, no waiting.

Completes 60 to 80 sq. ft. per minute. Works flush to curbs, rails, manholes.



Fast—60 to 80 Sq. Ft. a minute

Works where a roller can't

Because it works by *impaction* — hitting 1750 to 1900 blows per minute of more than 1250 foot pounds impact with its heated plate — the Wayer Impactor puts down pavement patches winter or summer, smoothly finished, thoroly cured, sealed tight and ready for immediate use.

Any bituminous material or dry concrete base for patching roads, streets, parking lots, etc., paving walks and floors. Also tamps earth. Easily portable. Big cost saving. Send for Bulletin 25-9.

WAYER IMPACTOR SALES CO.
12 N. Third St., Columbus 15, Ohio

CUT THE COST OF COLD!

KIM Hotstart

REG. U. S. PAT. OFF.

Slashing the cost of cold weather—excessive engine wear and repairs, worn out batteries, lost warm-up time, fuel waste—is easy when you install KIM Hotstart engine pre-heaters on your equipment. With these fool-proof heaters plugged into the electrical circuit, the engine is warm at starting time, and you cut the cost of cold in these five important ways:

Reduce engine wear and depreciation
Prolong life of batteries
Eliminate warm-up time
Cut fuel consumption
Avoid necessity of heated terminals

Made in four sizes, there is a model for any gasoline or diesel engine—on trucks, tractors, automobiles or stationary engines. Sold and installed by International Harvester and Mack Truck dealers, and by leading automotive suppliers. See them for detailed information, or fill in and mail the coupon.

KIM Hotstart · *ENGINE PRE-HEATER*

KIM Hotstart Manufacturing Co.
West 917 Broadway, Spokane 11, Washington
Please send literature, prices and name of local dealer

Name_____

Address_____

City_____ Zone_____ State_____

Make and model of equipment_____

_____

Modernize - Powerize - Economize!

SEVEN POWER SEWER CLEANING UNITS *offered by* **TURBINE**

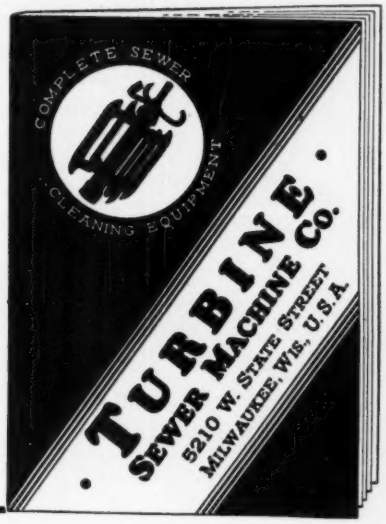
TURCO MAXI-POWER UNIT NO. 2

Write for this catalog and get Maxi-Power specifications.

EXCLUSIVE FEATURES

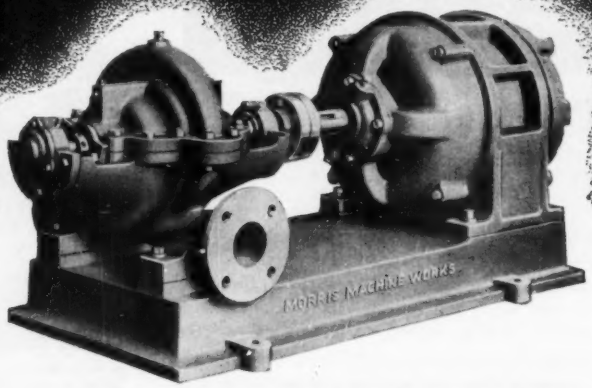
1. Tubular frame
2. Forged, inclosed gearing
3. One clutch
4. Flange ball-bearings
5. Designed level wind
6. 3-speed transmission
7. High-speed chain drive
8. No-clutch free spooling
9. Selected speeds
10. Bucket swing positioner

Models
VF3—Water-Cooled
ZF3—Air-Cooled



FLOATING SEALING RINGS...

Permit Closer Running Clearances...



MORRIS

Horizontally Split Double-Suction WATER PUMP

No other pump has the Floating Sealing Rings . . . yet this exclusive feature alone makes the Morris Double-Suction Water Pump outstanding for efficiency and long service.

During the instant that the pump comes up to speed, but before full pressure is built up, the Morris Floating Sealing Rings adjust themselves to a uniformly close running clearance around the impeller. As soon as full speed is developed the internal hydraulic pressure acting upon the vertical face of the floating ring presses it tightly against the precision machined surface of the casing ring where it is firmly held in place.

This action permits machining the Rings to closer clearances. Leakage is consequently reduced to a minimum, initial efficiency maintained for much longer periods of service. Assures concentricity of ring with impeller, and eliminates binding due to abnormal operating conditions.

Other Long-Service Features of the Morris...

- **Heavy duty, precision-made ball bearings mounted in dust and moisture-proof housings.**
- **Extra-heavy shaft of tough, hard alloy steel . . . exceptionally large in diameter . . . to prevent destructive whipping.**
- **Casing is horizontally split. Upper part easily removed for inspection and servicing without disturbing suction and discharge piping.**

Advanced design of Morris Double-Suction Water Pumps and their several exclusive features assure increased hydraulic and mechanical efficiency . . . reliability . . . and low maintenance cost. Write today for free Bulletin 179.

MORRIS *Centrifugal Pumps*

MORRIS MACHINE WORKS, Baldwinsville, N.Y.

Sales Offices in Principal Cities

More than sixty years of engineering experience in design, workmanship, and material make

HERSEY WATER METERS

the safest and most satisfactory investment in the water works field.

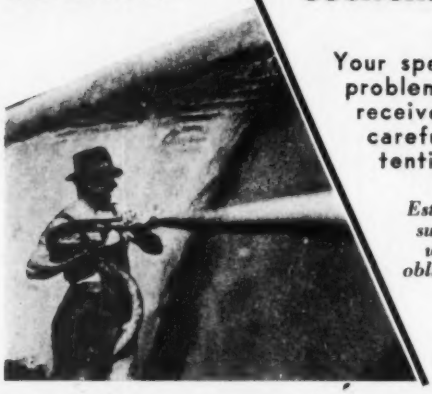
HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

dams
tanks
sewers
tunnels
penstocks
reservoirs

"GUNITE"

repairs them all with speed and economy.



Your specific problem will receive our careful attention.

Estimates supplied without obligation

WRITE FOR BOOKLET

PRESSURE CONCRETE CO.
193 EMMETT ST., NEWARK 5, N. J.
33 N. LA SALLE ST., CHICAGO 2, ILL. • 315 S. COURT ST., FLORENCE, ALA.

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

Prompt Shipment

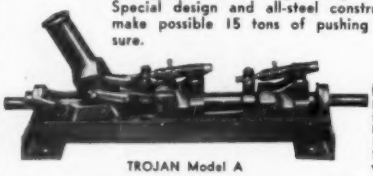
Inquiries and orders solicited

NORTHERN GRAVEL COMPANY
Muscatine, Iowa
P. O. Box No. 307 **Phone: 193**

The TROJAN pipe puller and pusher — Cuts Costs! Saves Time!

• Simplifies installation or renewing water and gas service lines under pavement

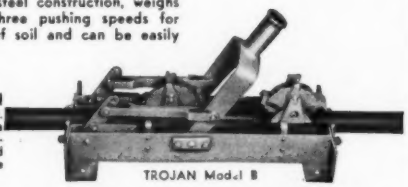
MODEL A—for ½" to 1" pipe. One man can lift in and out of trench and install average service. Weighs only 65 lbs. Special design and all-steel construction make possible 15 tons of pushing pressure.



TROJAN Model A

DOUBLE ACTION AND CONTINUOUS OPERATION
No re-setting or grip required. Push pipe is made of double extra heavy steel pipe with inside couplings for butt joint. Pilots and Special Couplings will handle variety of jobs.

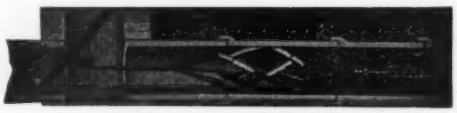
MODEL B—will push up to 2" pipe without additional dogs, clamps or wedges. Heavy duty, all-steel construction, weighs 140 lbs. Has three pushing speeds for different types of soil and can be easily reversed.



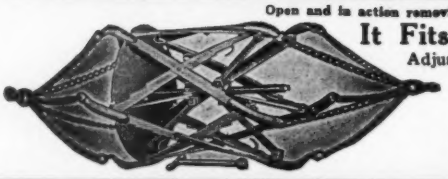
TROJAN Model B

The TROJAN Manufacturing Co., 441 East Water St., Troy, Ohio

EXPANDING ROOT CUTTER & SEWER CLEANER



Open and in action removing roots and caked sediment like this.



It Fits in on Every Sewer Cleaning Job

Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.
Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

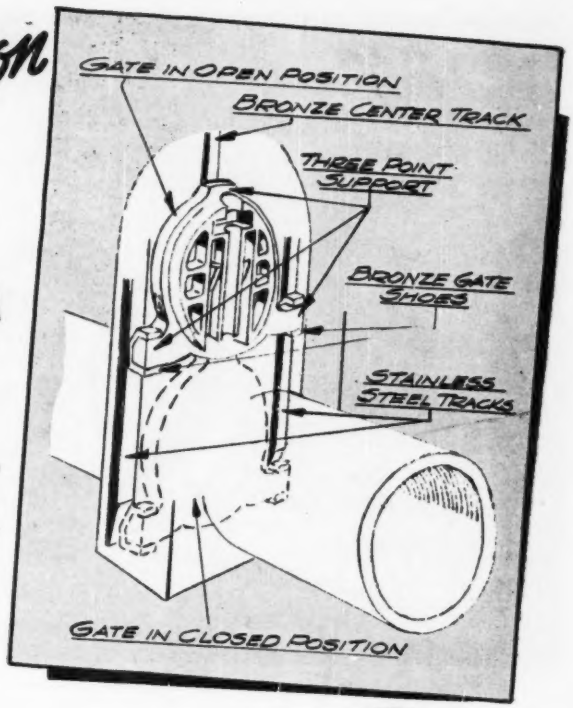
Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY
108 East Walnut St. **Nappanee, Ind.**

FOR *Positive Operation*

RENSSELAER

SQUARE BOTTOM GATE VALVES *have 3-point gate support* moving on STAINLESS STEEL TRACKS

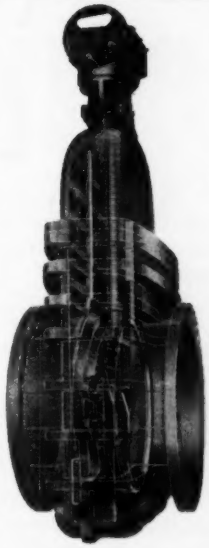


Designed for longer life under severe operating conditions, this was the pioneer valve supporting the downstream gate in THREE places at EVERY point in its travel. In its full length of travel this gate is smoothly guided by the lower supporting lugs sliding on STAINLESS STEEL TRACKS. The center track, for the top lug, is bronze.

- This constant three-point support means eliminating any tendency of the gates to tilt when partly open and score or wear the face of the seat ring.
- Another feature—during entire operation, the gate ring is held completely free from contact with the seat ring, by the tracks, until near the closing point. Then the tracks taper and allow contact between gate and seat, minimizing wear.

Recommended for emergency shutoff, frequent operation, throttling service and vertical pipe lines.

- *Without obligation on your part, a Rensselaer representative will be glad to give you the benefit of his experience in Valves, Hydrants and other Rensselaer products. Call our nearest office.*



WHAT 3-POINT SUPPORT MEANS

1—*Valve closes easily under high differential head.*
2—*Valve operates frequently without excessive wear.*
3—*Valve can be used for throttling without damaging seat rings.*
4—*The gates are properly supported for operating in vertical lines.*

VALVES & HYDRANTS IN STOCK
ATLANTA
CHICAGO
KANSAS CITY
LOS ANGELES

LEADERSHIP FOR OVER 65 YEARS

RENSSELAER

Gate Valves • Square Bottom Valves • Tapping Valves and Sleeves
Hydrants • Check Valves • Air Release Valves

RENSSELAER VALVE COMPANY • TROY, N. Y.

Division of Neptune Meter Company

Atlanta, Bala-Cynwyd, Pa., Chicago, Denver, Haverhill, Mass., Hornell, N. Y., Kansas City, Los Angeles, Memphis, Oklahoma City, Pittsburgh, San Francisco, Seattle, Waco

Less Infiltration

TRANSITE* SEWER PIPE offers two basic safeguards that minimize infiltration in sewer lines: *tighter* joints and *fewer* joints.

Transite's special sleeve-type joints make up tight and stay tight in service.
Its long 13-foot lengths reduce the number of joints in the system.

These safeguards cut down the volume usually allowed for infiltration, reducing sewage load on the treatment plant and conserving plant capacity for future needs. Where new treatment facilities are planned, this reduced infiltration may permit consideration of a smaller plant with resulting economies.

Other Transite Economies—Transite's long lengths help maintain uniform grades; fewer joints reduce turbulence in the line. These advantages, added to Transite's unusually smooth interior, mean better flow qualities (Kutter's n=.010). This often permits designing the system with flatter grades and shallower trenches. Or, as an alternate economy, pipe of smaller diameter may be specified.

Transite Sewer Pipe is made of asbestos, cement and silica by a special manufacturing process that employs steam curing to develop greater corrosion resistance and strength. It is available in four strength classes in sizes to 36", permitting selection of the pipe best suited to trench conditions, and frequently eliminating the need for concrete cradles.

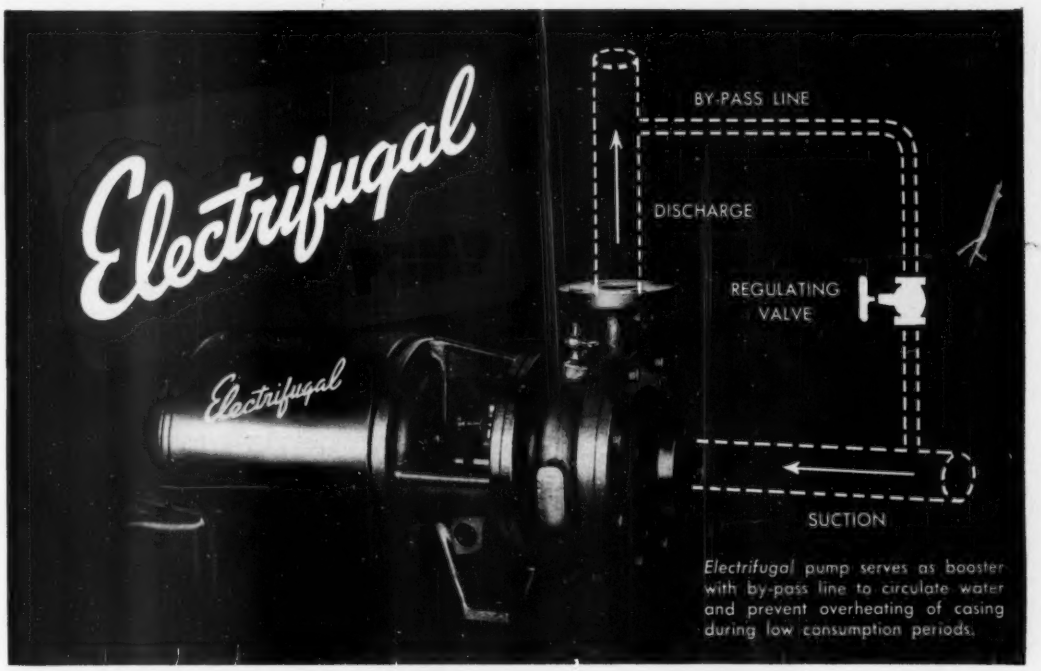
For further details, write Johns-Manville, Box 290, New York 16, N. Y.

JM

*Transite is a Johns-Manville registered trade mark

.....Johns-Manville

TRANSITE SEWER PIPE...



Electrifugal pump serves as booster with by-pass line to circulate water and prevent overheating of casing during low consumption periods.

Boost Pressures

ON UNDERSIZE MUNICIPAL PIPE LINES!

- ***Electrifugal pumps do the job dependably and inexpensively***
- ***You escape heavy construction costs of replacing old lines***
- ***Complaints from users in low pressure areas are eliminated***

EXPANDING residential areas often suffer from low water pressures due to undersize pipe lines. Replacement means interrupted service and costly construction. An alternate solution — used by many cities — is to install *Electrifugal* pumps as boosters.

In an outlying district of one city, up to 50 homes are serviced on a two-inch line using the method diagramed above. The *Electrifugal* pump constantly maintained normal pressure during both high and low consumption periods.

Because the cast iron yoke and bracket for mounting are designed as a single piece, separate adapters are eliminated. And because motor and pump are on a single shaft, perfect alignment is assured and maintenance costs are negligible.

Your nearest A-C representative would be glad to discuss your pumping problems. Why not call him? For more details, send the coupon today.

Electrifugal is an Allis-Chalmers trademark.

ALLIS-CHALMERS

Builders of the World's Widest Line of Major Public Works Equipment

Mail Coupon Today

ALLIS-CHALMERS, 1185A SO. 70 ST. MILWAUKEE, WIS.

I am interested in knowing more about *Electrifugal* pumps and how they can economically solve problems of boosting water pressures in undersize pipe lines.

☐ **Please have an Allis-Chalmers representative call.**

☐ **Please send me bulletin 52B6059E, "*Electrifugal* Pumps".**

Your Name _____

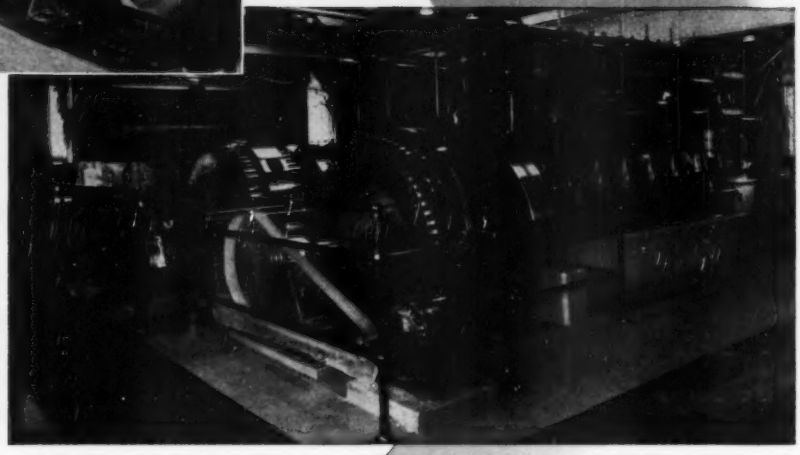
Position _____

Address _____

City _____ **State** _____

A-2855

Gold is where you find it



● Seven Superior Diesels helped a midwest quarry company find gold—gold in the form of reduced power costs. In only 12 years the use of Diesels reduced the cost of electrical power $156,000, *after all expenses, including depreciation, were deducted!*

But Superior Diesels supplied more than a low cost source of power—they also provided a dependable one. The engines are operated *at least 16 hours daily, 6 days a week, 52 weeks a year!*

Over and over again we hear similar reports about the outstanding performance provided by Superior Diesels. But that's not strange when you consider that Superior has all of the following advantages: Conservative Ratings ● Fuel Economy ● Precision Bearings ● Heavy Rigid Crankshafts ● Strong Bases and Cylinder Blocks ● Proved Roller Chain Camshaft Drive ● Oil Cooled Pistons.

Superior Diesels may be able to help you get gold from your power costs. We would like to discuss it with you—just drop us a line and tell us when it's convenient for you.

THE NATIONAL SUPPLY COMPANY
SUPERIOR ENGINE DIVISION
Plant and General Sales Office: Springfield, Ohio

THE NATIONAL SUPPLY COMPANY — NSCO

Superior DIESEL

The M-B insignia on Meili-Blumberg machines is your assurance of obtaining better road maintenance equipment. M-B machines are profit-makers. They have many uses, yet cost less than single-purpose machines. You get more hours of productive work with a minimum investment. All M-B road equipment is rugged in construction, easy to operate, quickly portable from job to job.

An M-B Crane Hook, Backfiller, Front-End Loader, Bulldozer, Snow Plow, Scarifier or Power Sweeper easily mounts on either M-B Power Grader or M-B Maintainer. The M-B Power Sweeper also attaches to any truck or tractor equipped with an undercarriage. Both M-B Street Markers and M-B Highway Markers can also be used for all-purpose paint spraying jobs. The M-B Tilt-Bed Trailer safely transports all types of equipment from one job to another.

Contractors, airports, highway departments, cities, counties and municipalities all find M-B road maintenance equipment efficient and economical to operate the year 'round. Write for M-B Bulletin No. 144.

MEILI-BLUMBERG Corp.

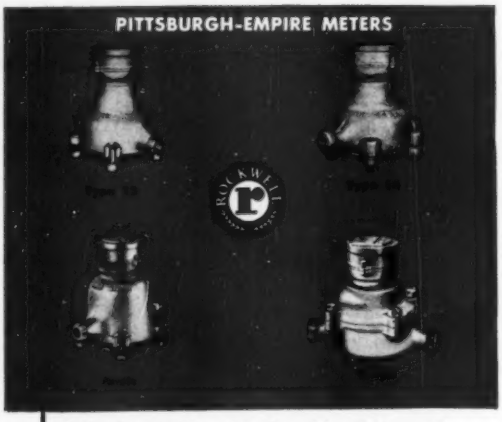
A 5636-1P-C

The "GREAT GILDERSLEEVE"*

If there isn't a meter at the top of this pole, one of Gildy's new Meter Readerettes is going to have a little trouble. Gildy's scheme seems to be going to the dogs, doggonit.

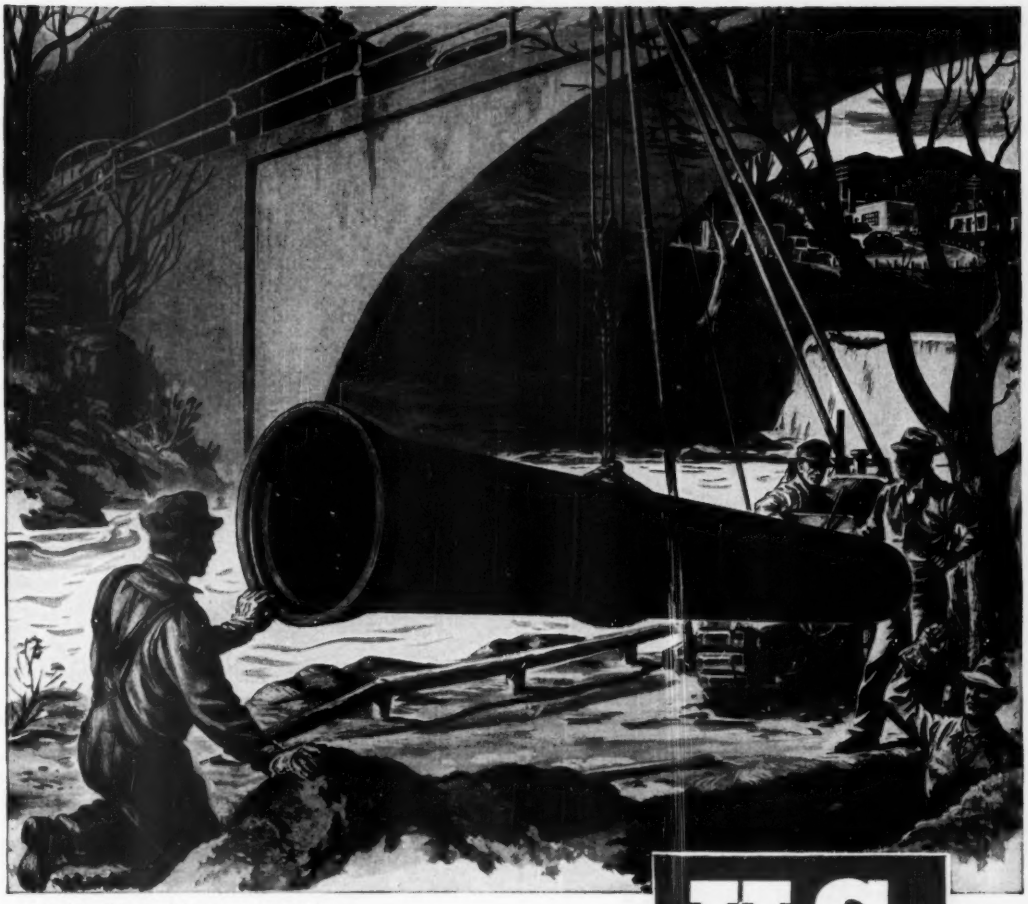
Gildersleeve's new twist takes a nasty turn as the complaints pour in. "My water bill looks like I'd been backfilling Hoover Dam." Chester Conklin says, "Here's another beef." Gildy moans.

"After all, Chester, meter reading is a man's job," says Gildy. Go out and read those Pittsburgh meters right so we can reap the profit as never before. Good old faithful, dependable Chester, you're for me."



Seriously speaking, there's nothing that equals these meters for faithful performance, extreme accuracy and long life.

PITTSBURGH EQUITABLE METER DIVISION



Painted for U. S. Pipe & Foundry Co. by Paul Laune

U.S. cast iron PIPE

THERE are two basic reasons for the uniform high quality of U. S. Super-deLavaud Cast Iron Pipe. Uniformity is obtained by centrifugal casting in permanent metal molds—uniformity in metal structure, in wall thickness and in concentricity. Quality is maintained by scientific controls based on production and process research. To augment the activities of our Research and Development Department toward developing higher obtainable standards of quality we have recently completed a new Headquarters Research and Foundry Laboratory, one of the largest and finest in the Cast Iron Pressure Pipe Industry. **United States Pipe and Foundry Co., General Offices: Burlington, New Jersey, Plants and Sales Offices Throughout U. S. A.**

Metcalf

TRADE MARK REG U S PAT OFF

UNIFORM FABRICS

FIREMEN

Standard fabrics for over eighty years

POLICE

Specify 386 and other standard numbers. Sample brochure upon request

METCALF BROS. & CO. **45 EAST 17th STREET, NEW YORK CITY**

FOR WATER CONDITIONING

SOLVAY

For Water Softening
...SOLVAY Soda Ash

For Water Purification
...SOLVAY Liquid Chlorine

For Water Technical Service
...Call SOLVAY

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ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.
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Statement of the Ownership, Management, Circulation, etc., Required by the Act of Congress of March 3, 1933, of The American City, Published Monthly at New York, N. Y.; September 29, 1949.

State of New York, County of New York ss.:

Before me, a Notary Public in and for the State and County aforesaid personally appeared EDGAR J. BUTTENHEIM, who having been duly sworn according to law, deposes and says that he is the President and Business Manager of the American City Magazine Corporation, Publishers of THE AMERICAN CITY and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of March 3, 1933, embodied in Section 537, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, AMERICAN CITY MAGAZINE CORPORATION, 470 4th Ave., New York. 16.

Editor, HAROLD S. BUTTENHEIM, 470 4th Ave., New York 16.
Managing Editor. None.
Business Manager, EDGAR J. BUTTENHEIM, 470 4th Ave., N. Y. 16.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stock holders owning or holding 1 per cent or more of the total amount of stock.)

AMERICAN CITY MAGAZINE CORPORATION, 470 4th Ave., N. Y. 16.
Stockholders: EDGAR J. BUTTENHEIM, 470 4th Ave., N. Y. 16
HAROLD S. BUTTENHEIM, 470 4th Ave., N. Y. 16
MARIAN V. BUTTENHEIM, Yonkers, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders, and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appear upon the books of the company as trustee or in any other fiduciary relation, the names of the person or corporation for whom such trustee is acting, is given, also that the said two paragraphs contain statements embracing affiants' full knowledge and belief as to the circumstances and conditions under which stockholders and security holders, who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner, and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. AMERICAN CITY MAGAZINE CORPORATION.

Sworn to and subscribed before me this 29th day of September, 1949
New York County Clerk's No. 736
(My commission expires March 30, 1950)

EDGAR J. BUTTENHEIM, Pres.
EDWIN WAGNER
Notary Public
New York Co., N.Y.

A $385.00 1½ YD. BUCKET CONVERTS THE SCHIELD BANTAM FOR SNOW REMOVAL

Put a special 1½ yd. Schield snow bucket on the dipper stick of the Schield BANTAM Shovel and you can load up to 6 cu. yds. of snow per minute. Saves expensive outlay for specialized equipment that is used only several times a season. The Truck Mounted Schield BANTAM gets around. Drives up and digs in. With interchangeable booms and buckets it does 101 jobs. Earns big money by tackling small jobs at a profit-making pace. Eliminates costly, time-consuming hand labor by getting into tight spots. The BANTAM is the ideal machine for storm and utility sewer digging, cleaning out drainage ditches, excavating for basements, loading sand, gravel and construction materials. Get the full story about the BANTAM. Write for complete details now.

THE SCHIELD BANTAM COMPANY, INC.
208 PARK STREET WAVERLY, IOWA

CAPACITY

Shovel or Dragline—60 yards per hour

Trench Hoe—
100 feet of 5 ft. ditch per hour

Crane—5 tons

THE SCHIELD BANTAM

TRUCK MOUNTED SHOVEL, DRAGLINE, TRENCH HOE, CRANE, CLAMSHELL, BACKFILLER, PILEDRIVER

SOLD AND SERVICED BY LEADING CONSTRUCTION MACHINERY DEALERS THROUGHOUT THE UNITED STATES, CANADA, AND FOREIGN COUNTRIES

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no need to wreck pavements . . . disrupt traffic . . . irk taxpayers!

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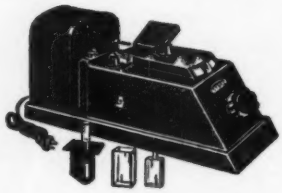
ELECTRIC PHOTOMETER

Adaptable for Use in Water Analysis



Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

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Newly Improved
OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money—in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

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GET FULL FACTS NOW!

CHAMPION CORPORATION, 4716 Sheffield Ave., Hammond, Ind.
Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

NAME.....TITLE.....

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Featherweight Models 85, 85A and 87 will meet your every requirement.

Write today for complete literature and name of nearest distributor.

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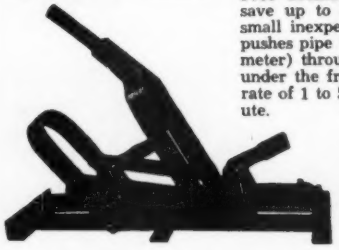
DON'T LET OLD MAN WINTER STOP *Your* PIPE INSTALLATIONS



Free booklet tells how to save up to 80% with this small inexpensive tool that pushes pipe (up to 15" diameter) through the ground, under the frost line, at the rate of 1 to 5 feet per minute.

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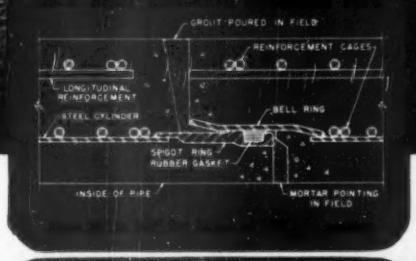
GIANT MFG. CO.
Council Bluffs, Ia.

THERE TO STAY!
Dense concrete wall encases steel reinforcement
Steel spigot end and rubber gasket (see diagram)
Smooth inside surface assures maximum flow characteristics
Encased steel reinforcement combines water-tight steel cylinder and cage reinforcement assembly (see diagram)
Steel bell ring (see diagram)



Permanence and sustained high performance of Lock Joint Concrete Cylinder Pipe help reduce the cost of delivered water.

Performance in this important water supply line is the result of multiple requirements: (1) great strength, both for resistance to designed operating pressures and for great earth loadings – all with an ample factor of safety; (2) flexible, yet positively watertight joints; (3) resistance to corrosion and tuberculation which assure maximum and sustained hydraulic capacity.

This superior design of pressure pipe combines the physical properties of steel with the structural and protective properties of concrete to meet the most exacting job requirements, and the Lock Joint Rubber Gasket Joint provides ease of installation, flexibility and trouble-free service under all normal operating conditions.

These factors, plus reasonable first cost and freedom from maintenance, mean immediate and long-term savings in the cost of delivered water. Lock Joint Reinforced Concrete Pressure Pipe and its superior qualities of design are *"there to stay"—permanently.*

American PIPE AND CONSTRUCTION CO.

Concrete Pipe for Main Water Supply Lines, Storm and Sanitary Sewers, Subaqueous Pipe Lines

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Quality pipe line products manufactured and installed by American include: Lock Joint Concrete Cylinder Pipe, American Concrete Cylinder Pipe, Prestressed Lock Joint Concrete Cylinder Pipe, Centrifugal Concrete Pressure Pipe.

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Every American KITCHENS Garbage Disposer Installed Saves Your City Money!

Civic Authorities Everywhere Agree—Disposers Help Reduce Both Garbage Collection and Health Department Costs!

■ Yes, each disposer installation made in your city means an actual dollars-and-cents savings. Small now, perhaps—but when the time comes that a majority of homes have disposers, your savings will be appreciable.

That's why far-sighted municipal authorities in many cities are *urging* architects and builders to include garbage disposal units in the new houses they build. They recognize that disposers benefit the municipality as well as the homeowner—because they help check spread of disease in addition to reducing collection costs.

Sooner or later *every* family will dispose of its food wastes this more sanitary way. We, of course, hope that you find yourself free to recommend our American Kitchens Disposers. But even if you recommend another brand, we say "go to it". Because the sooner disposers are in universal use, the more healthful we all should be!

The new American Kitchens Disposer. As was cited in *The American City's* study, "Ground Garbage", (Feb., 1948 issue) universal use of such disposers (1) should not overload a sewer system, (2) nor cause trouble of any kind in any well-designed sewer, (3) will effect material savings in the cost of handling garbage.

WHY ENGINEERS SAY THE NEW AMERICAN KITCHENS DISPOSER IS SUPERIOR TO ALL OTHER TYPES

While *all* nationally-advertised disposers have been proved satisfactory, engineers consider the new American Kitchens Disposer the most advanced. For several reasons: the American Kitchens Disposer provides a patented "knee-action" hinge in the center of each pulverizer arm (see diagram) so that disposer absolutely can not jam—even on contact with metal! Also, engineers approve its additional *vertical* shredders, saw-tooth hammers, easier servicing.

American KITCHENS DISPOSER

PRESENTED BY THE MAKERS OF FAMOUS AMERICAN KITCHENS

AMERICAN CENTRAL DIVISION AVCO CONNERSVILLE, INDIANA

"City highly endorses Badger Meters and Testing Machines"

That's what the mayor of one Illinois city wrote to another, adding: "Operation of these meters has always been satisfactory and maintenance-cost very reasonable . . . in our meter shop, a Badger Testing Machine enables us to see the quality of our work, which was not possible before we bought the Testing Unit."

In over 5000 communities, waterworks men know that "It pays to BUY BADGER".

Every waterworks superintendent should have the NEW BADGER CHART No. 689 (Practical Plan for Meter Storage Rack). WRITE today for this chart...no charge.

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You will find a Badger Meter size and type for every waterworks service. Shown here are Model SC-IOT (for warm climates), and Model A-IOT (for cold climates) . . . sizes ⅝" to 1¼" . . . other models in sizes up to 12". Write for complete information and prices.

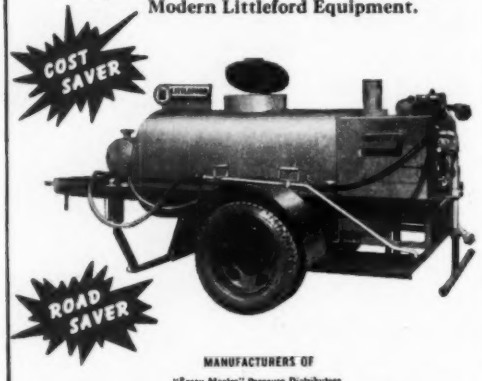
BADGER Water METERS

ACCURACY · LOW-COST MAINTENANCE · DURABILITY · SENSITIVENESS

THERE'S 3 DEFINITE REASONS WHY YOU NEED THIS LITTLEFORD TRIPLE ACTION No. 101

Model No. 101
Utility Spray Tank using Hand Spray for Patch Work.

This Littleford No. 101 Utility Spray Tank is not only a Time Saver, Cost Saver and Road Saver, but it is a combination of three units rolled into one. It has a Spray Bar for small application jobs, a Hand Spray for patch work and a Pouring Pot Outlet for crack filling work. When the Littleford No. 101 is on the job, the road maintenance crew can do almost all road repairs with this one piece of equipment. The 101 is efficient in operation, saves time and money, its use on Roads, Streets and Highways saves our transportation system. Be modern, use Modern Littleford Equipment.



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"Spray Master" Pressure Distributors

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BLACK TOP ROAD MAINTENANCE EQUIPMENT SINCE • 1900

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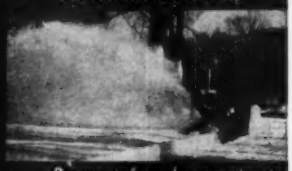
SNOW DISAPPEARS with a MAXIM SNOW THROWER

THROWS SNOW UP TO 30 FT.
NO BANKED UP EDGES

- Ideal for clearing sidewalks, driveways, parking areas, skating rinks, etc.
- Will handle any depth of snow customarily encountered in your area.
- Clears 28" path at rate of 120 ft. per min.
- Well balanced, self-propelled, just follow and guide.
- Dependable, powerful 7.2 H.P. Wisconsin engine.



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DENSE • DURABLE • HIGH STRENGTH

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Restoring Disintegrated Concrete
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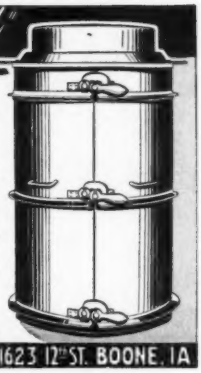
THE "Quinn Standard" FOR CONCRETE PIPE



The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request.

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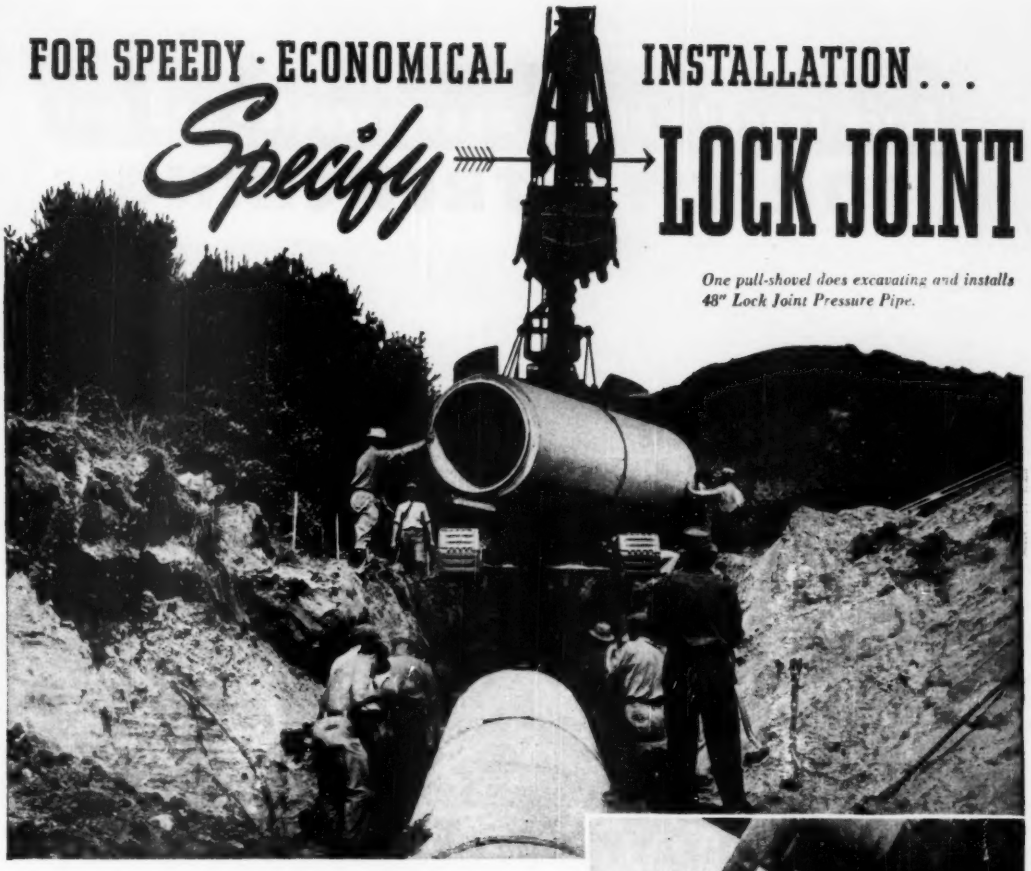
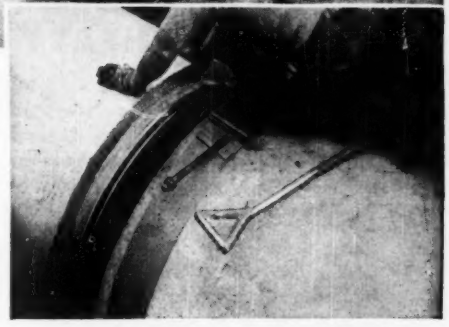
FOR SPEEDY · ECONOMICAL INSTALLATION . . .

Specify → LOCK JOINT

One pull-shovel does excavating and installs 48" Lock Joint Pressure Pipe.





Rubber and Steel Joint ready to be pushed home.

• • • With its exclusive Rubber and Steel Joint, Lock Joint Reinforced Concrete Pressure Pipe is installed rapidly and efficiently in extremes of heat or cold—in wet ditch or dry.

Only one machine is required to make the excavation and install the pipe. No caulking or bolting of the joint is necessary, and the pipe may be back-filled immediately. The Rubber and Steel self-centering expansion joint is flexible to accommodate ground settlement, and is watertight at any internal pressures common to American Water Works practice.

Today, millions of feet of Lock Joint Reinforced Concrete Pressure Pipe, equipped with the Rubber and Steel Joint, installed at low cost and needing little or no maintenance, are giving unfailing service throughout the Western hemisphere.

LOCK JOINT PIPE COMPANY

Est. 1905

P.O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J. • Turner, Kan. • Detroit, Mich.

BRANCH OFFICES: Cheyenne, Wyo. • Denver, Colo. • Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. Wichita, Kan. • Kenilworth, N. J. • Hartford, Conn.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

LOCK JOINT
Reinforced Concrete
PRESSURE PIPE

Extra rugged • highly maneuverable • and fast

FOR CITY TRENCHING

PARSONS HEAVY-DUTY 221 TRENCHLINER*

For excavating along curbs, pole lines, next to buildings in streets and narrow alleys, you'll find this Parsons 221 Trenchliner the all-around answer to your special problems of city trenching. It has the heavy-duty digging strength of a power shovel, plus all the speed and agility needed for trenching.

Husky, ladder-type digging boom shifts across full width of machine . . . lets the 221 cut within 10" of side obstructions. Telescopic boom digs up to 8½' deep . . . 16" to 36" wide . . . has automatic safety clutch to protect main machinery against obstructions and shock loads. 30 digging speeds from 5" to 12' per minute assure maximum trench production at every digging level, and in all kinds of materials. Arc-type spoil conveyor dumps on either side . . . arc provides plenty of clearance for truck loading, or gives you low-level drop for close-to-trench deposit. Machine maneuvers like a crawler tractor . . . quickly pivots completely around in its own length.

You get steady, trouble-free performance, because every assembly, from the 221's tractor type crawlers and all-welded arched frame, to its high carbon steel digging buckets is extra heavy-duty in every detail. Power is delivered to the bucket line on all anti-friction bearings. Take-off shafts are short, large in diameter, rigidly held in alignment in heavy gear case. All gears are fully enclosed, run in continuous oil bath. Result: less down time, more work time . . . more miles of trench dug faster, and at lower cost for you with Parsons 221 Trenchliner.

Contact your Parsons Distributor for complete facts and figures on the 221. Ask, too, about the 3 other sizes of crawler Trenchliners, and new, rubber-tired, utility Trenchmobile in the modern Parsons line.

KOEHRING PRODUCT

PARSONS COMPANY
NEWTON, IOWA

Koehring Subsidiary

Lift Capacity increased 50%

. . . . . WITH KOEHRING TRUCK CRANES . . . . . .

On scattered lifting jobs requiring frequent moves, you can get extra load capacities, reach and extra speed with Koehring Truck Cranes. Model 304 safely lifts 40,000 lbs. . . . 8½ tons more than its crawler rating. Extra stability of truck crane mounting increases boom reach from 70' to a maximum 110'. Koehring 205 Truck Crane (below), with its 20,000 lb. lift on rubber, also increases load capacity about half. Maximum boom length is stepped up from 50' to 85'. These mobile Truck Cranes roll along at 30 to 35 m.p.h. . . . no waiting for trailer, no planking. Hinged booms fold back for ample clearance . . . saves more time every move.

Both the 304 and 205 are also available on rubber-tired cruiser mounting. Other Koehring Crane sizes include 30½-ton 605, and big 79½-ton 1005. For more information, see your Koehring Distributor, or write to us.

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16-S DANDIE* with Tower Loader

. . . . DISCHARGES CONCRETE AT 9' HEIGHT

Now you can discharge concrete batches into trucks, hoppers, or direct to forms above ground level, with handy new Kwik-Mix Tower Loader attachment. Saves time and cost of overhead mixer installations on many jobs. Available for both the Kwik-Mix 11-S and 16-S Dandie Mixers . . . has a maximum discharge height of 9' 2".

Big bucket holds full mixer batch . . . is raised by power . . . dumps automatically at top of tower. Bucket travel and discharge are completed while next batch is being mixed . . . no delay to mixer production. Its single lever is controlled by mixer operator . . . mixer engine supplies the power.

Doesn't interfere with the mobility of 11-S and 16-S Dandies . . . is quickly, easily collapsed for ample travel clearance. Get all the facts on this Tower Loader from your Kwik-Mix Distributor, or write us TODAY. Also ask about the complete Kwik-Mix line of concrete, bituminous and plaster-mortar mixers.

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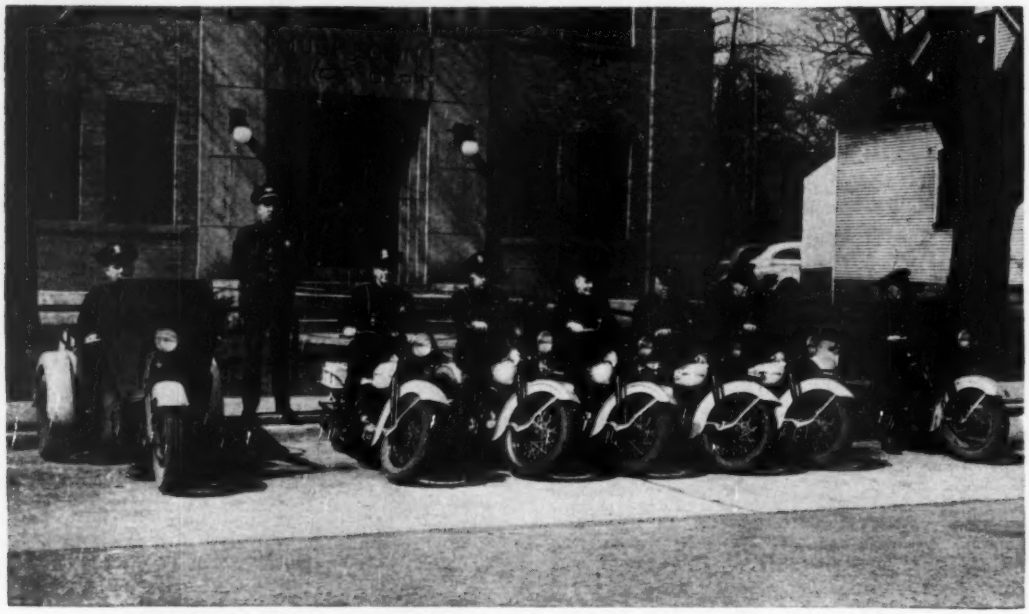
ATTAIN HIGH SAFETY RECORD

with aid of

HARLEY-DAVIDSON MOTORCYCLES



Shown is one shift of Muskegon's outstanding Traffic Squad. Left to right: Officer Ora Johnson, Sergeant Herbert J. Dood, Officers Robert Cronican, William Gaunt, Fred Piatt, Arthur Gunn, Royden Paul, Paul Sachteleben.

CONGRATULATIONS to Muskegon and its fine police department! Among 85 cities of 50,000 to 100,000 population in the National Traffic Safety Contest, Muskegon recently topped the monthly list with the lowest number of accidents. Such recognition is high tribute to the efficiency of Muskegon's traffic control program and the outstanding work of its traffic department. Motorcycles, as usual, played a prominent role in aiding police. Especially significant is the fact that Harley-Davidsons have been used exclusively at Muskegon ever since 1923. In hundreds of other cities, dependable Harley-Davidson Police Motorcycles are similarly demonstrating their exceptional value in accident prevention. Why not learn more about the many ways in which Harley-Davidson Police Motorcycles, Servi-Cars and Sidecars can help you improve traffic control? Phone your dealer today for full information.

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

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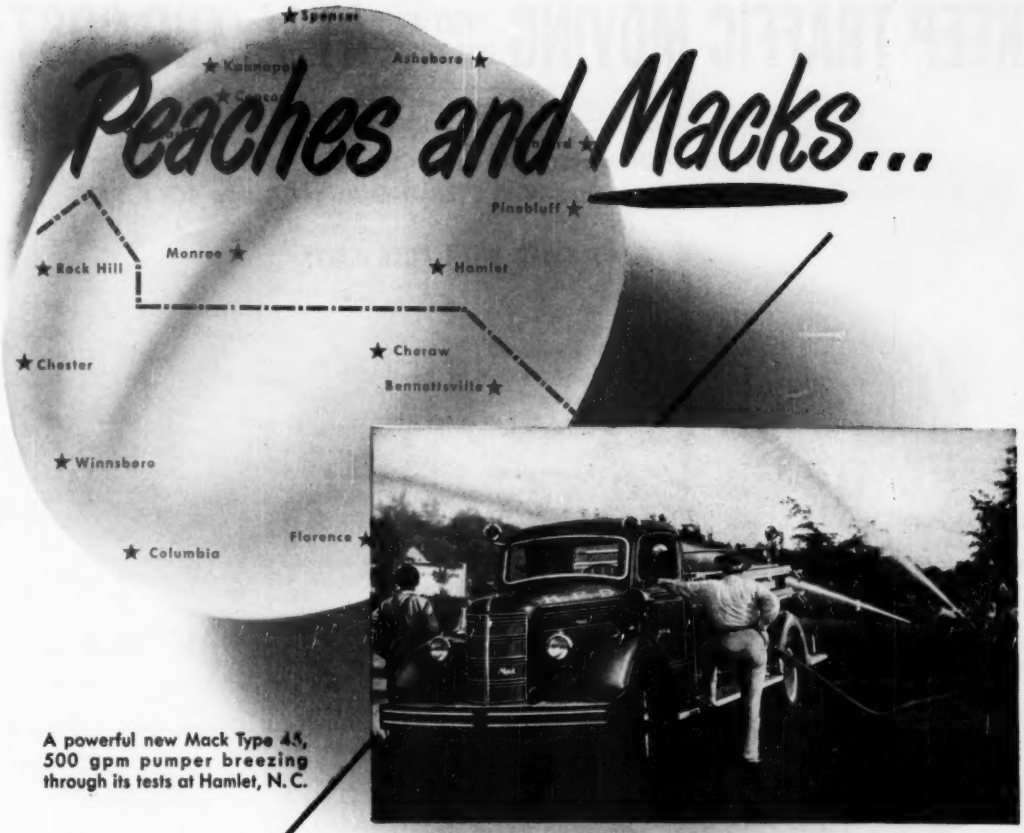
MOTORCYCLES POLICE BETTER TRAFFIC CONTROL **SERVI-CARS**

Peaches and Macks...



A powerful new Mack Type 45, 500 gpm pumper breezing through its tests at Hamlet, N. C.

the *pick* of the Carolinas

● Throughout this famous peach growing section of North and South Carolina you'll find they're all saying *"Mack's a peach of a fire engine."* The sixteen "Sandhill" communities that have recently bought Macks acclaim them as the best-performing and most dependable apparatus in the area.

There is a reason why Macks rate this praise. All the know-why and know-how of the largest research, engineering and manufacturing facilities in the field are built into every Mack apparatus. That's why they are the pride of more than 1000 departments from coast to coast who have *"Modernized with Macks."*

Mack fire apparatus

7750

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Factory branches and dealers for parts and service in all principal cities. In Canada: Mack Trucks of Canada, Ltd.

TRIPLE COMBINATION PUMPERS—500 TO 2000 GPM . . . SQUAD AND HOSE CARS . . . AERIAL, CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

KEEP TRAFFIC MOVING EVERY DAY THIS WINTER AT ½ THE COST

Change from Outmoded Abrasive Chemical Methods
Get "Bare-Pavement" Maintenance With STERLING Auger-Action ROCK SALT

ACTUAL COSTS OF PROTECTING ICY HIGHWAYS WITH TREATED SAND OR STRAIGHT ROCK SALT

Obtained from
F. Ray Williams,
Supt. of Highways,
Saratoga County, N.Y.

SAND MIXED WITH ROCK SALT:

Royalty	$ .10
Loading	.25
Haul, 5 miles at 8¢	.40
Piling with bulldozer	.15
Treating with salt at 50 lbs. per cu. yd.	.48
Reloading at time of storm	.25
Average haul, 10 miles at 8¢	.80
Spread	.10
Total cost per cu. yd.	$ 2.53
Use of 3 cu. yd. per mile at $2.53	7.59

STRAIGHT ROCK SALT:

CC Grade Rock Salt: (400 lb. per mile, computed for 5-ton load)

5 tons of bulk salt at $12.95 per ton	$64.75
Loading, 5 tons at 25¢ per ton	1.25
Average haul (30 miles at 8¢ per ton-mile) 5 tons	12.00
Spread (mechanical) 5 tons at $1.00	5.00
	$83.00
$83.00/5 ton ..... per ton =	16.60
$83.00/25 miles ..... per mile =	3.32

UNIT SAVINGS:

$7.59 cost per mile with treated sand
3.32 cost per mile with Sterling Rock Salt

$4.27 SAVING PER MILE EACH ICING IN FAVOR OF ROCK SALT
Mileage of state highways in Saratoga County, N. Y. = 216 miles
ESTIMATED SAVING EACH STORM = 216 x $4.27 = $922.32

SAFE

Sterling *Auger-Action* Rock Salt will not harm black top or brick pavements. NOR WILL IT HARM CONCRETE SLAB FOUR OR MORE YEARS OLD, NOR AIR-ENTRAINED CEMENT.*

*Authority: Portland Cement Association

FAST

One truck of Sterling *Auger-Action* Rock Salt will cover 10-15 miles before reloading. One truck with abrasives will cover only 1⅛ miles before reloading. THUS SALT IS APPLIED IN ⅒th THE TIME OF ABRASIVES.

EASY

Sterling *Auger-Action* Rock Salt is easy to store. It can be used in any mechanical spreader. No vari-sized chunks. No freezing. LEAVES NO RESIDUE TO BE CLEARED FROM ROADS AND SEWERS!

ORDER STERLING AUGER ACTION ROCK SALT NOW!

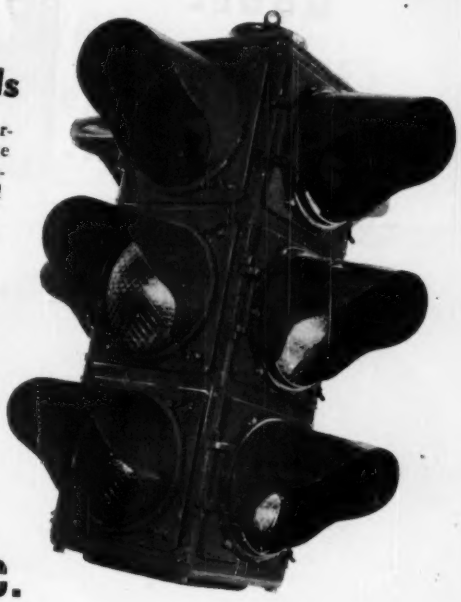
Comes in carloads, bulk, and handy 100-lb. bags.

INTERNATIONAL SALT COMPANY, INC.
SCRANTON, PA.

AUTOFLOW Traffic Signals

The AUTOFLOW is the last word in versatility. Built in streamlined sections, the signal can be made to serve any traffic combination. The AUTOFLOW was designed for ease of accessibility and a minimum of maintenance. No tools are required for inspections or service adjustments.

Precision spun Alzak aluminum reflectors, guaranteeing long life and efficiency, plus adjustable lamp focusing, assure a clear signal indication at 600 feet or more in bright sunlight. Lenses meet all Railway Signal coloring and Institute of Traffic Engineers requirements. The AUTOFLOW is adapted to any conventional method of mounting and finished in two coats of baked enamel, dark green or other colors when specified.



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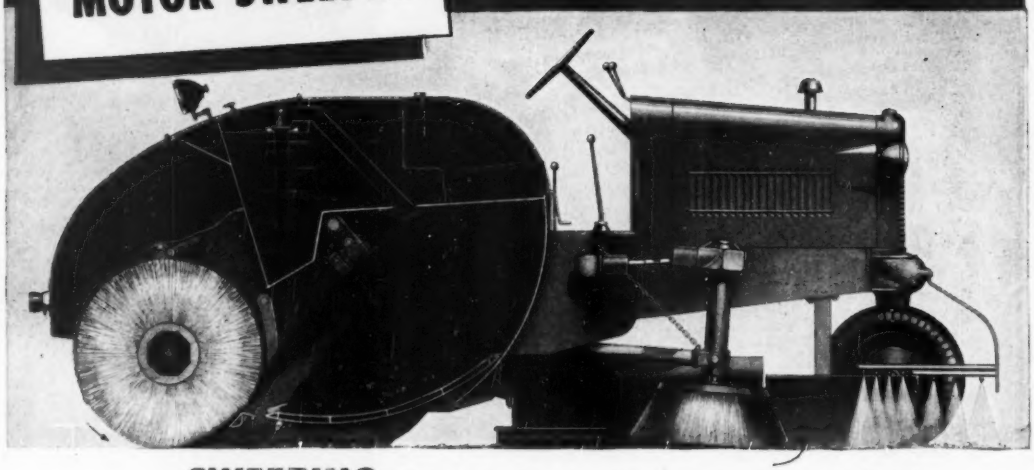

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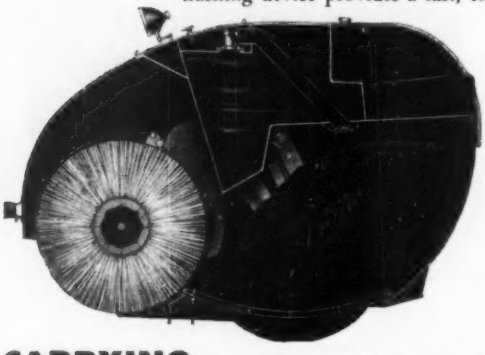
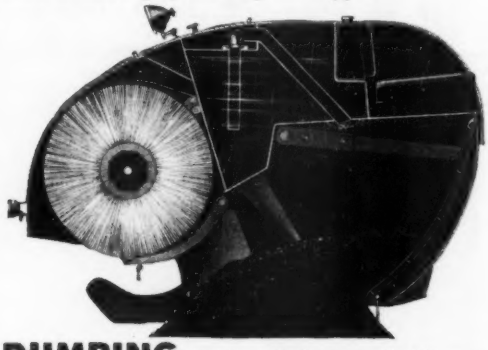


CARRYING. Broom and drag wings lift automatically as hopper gate moves back into rear broom by finger-tip hydraulic control. Rear broom forms leak-proof tail gate, closing hopper for transporting.



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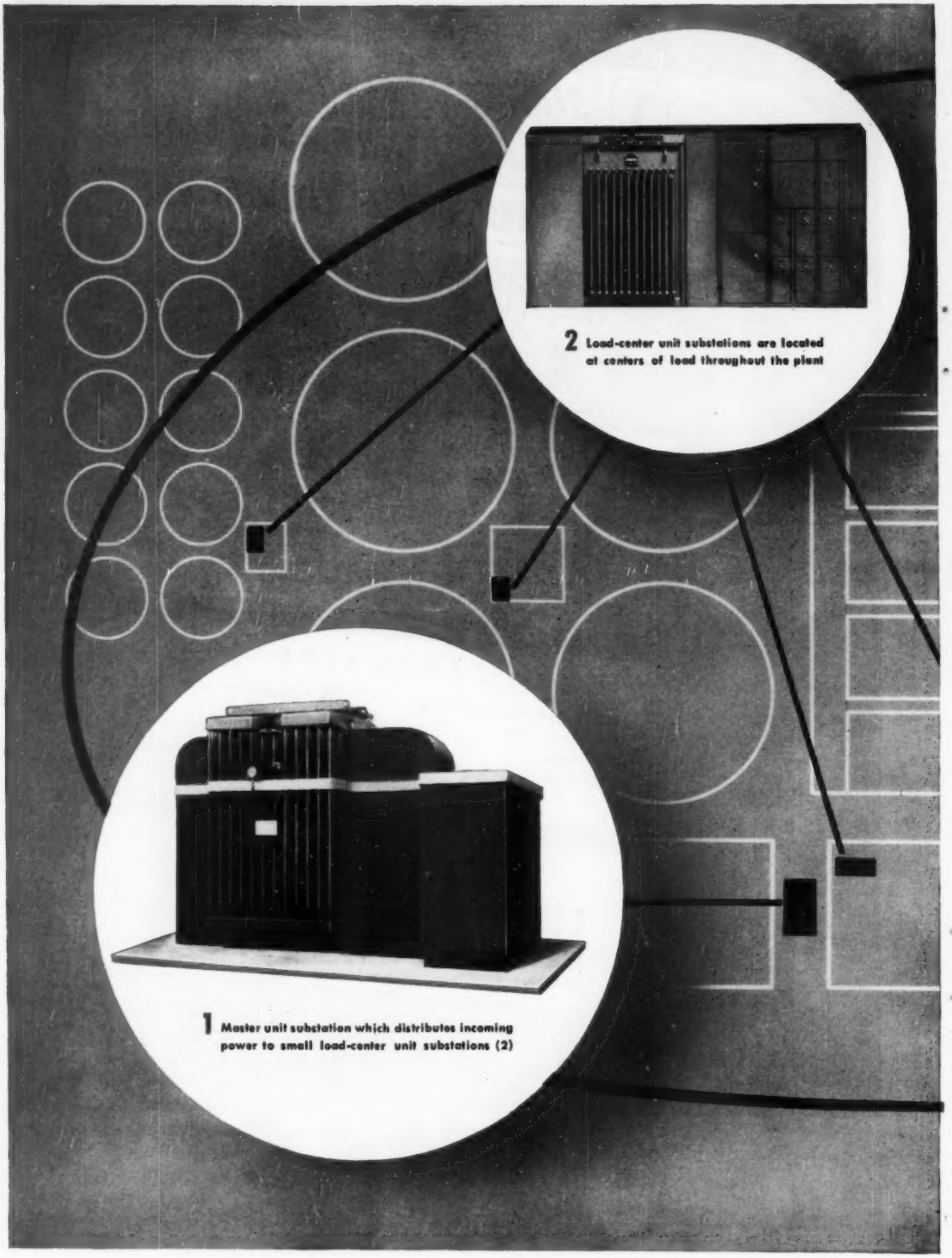
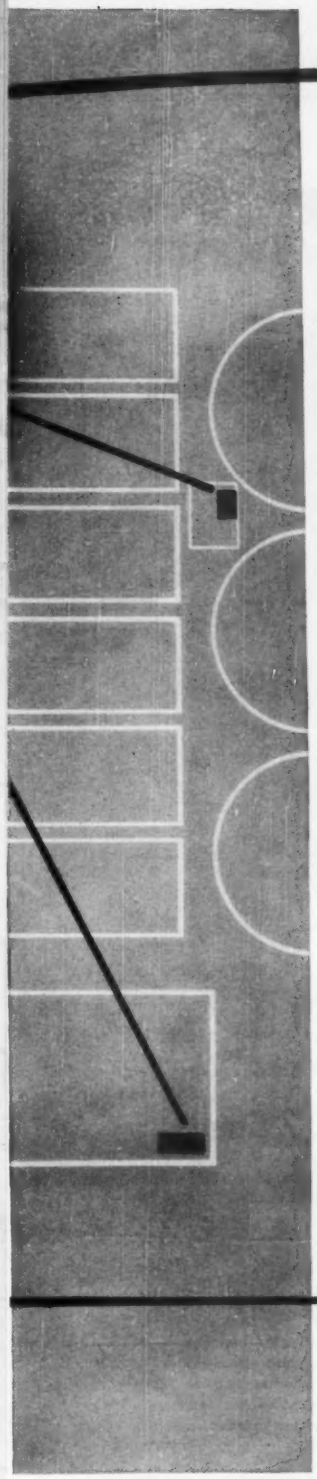


2 Load-center unit substations are located at centers of load throughout the plant

1 Master unit substation which distributes incoming power to small load-center unit substations (2)



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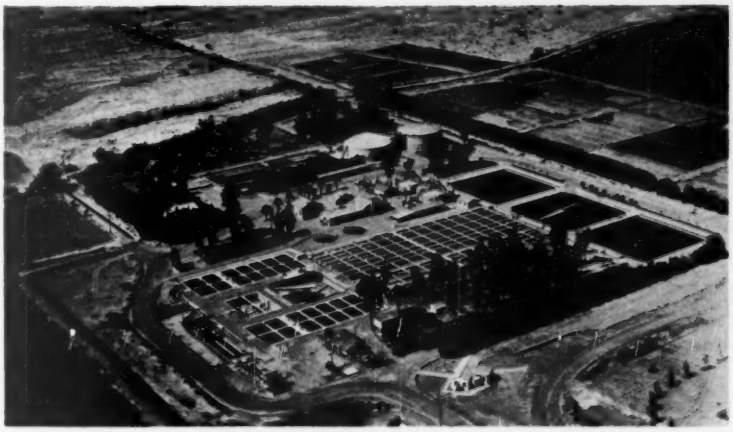
NOVEMBER 1949 The American City

Phoenix Rebuilds Its Sewage Treatment Plant



An aerial view showing the Phoenix plant after it was improved and enlarged.

Odorless collection and sparkling-effluent treatment are "musts" in this Southwestern city's sanitation program

THE problem at Phoenix was how to make a half-size plant do a super-deluxe job. Engineering-wise, one would rate the old plant at 12 mgd. Actually, it received, and struggled manfully to rehabilitate, 20 mgd that carried the water-borne wastes.

No particular question remained in anyone's mind about the need for the work. In 1930, the city built the plant to head off a lawsuit from downstream users of the Salt River. Phoenix sewage forms a substantial portion of the flow in this stream. The plant that the city built was designed around the activated-sludge process and has been operated with meticulous care for nearly two decades.

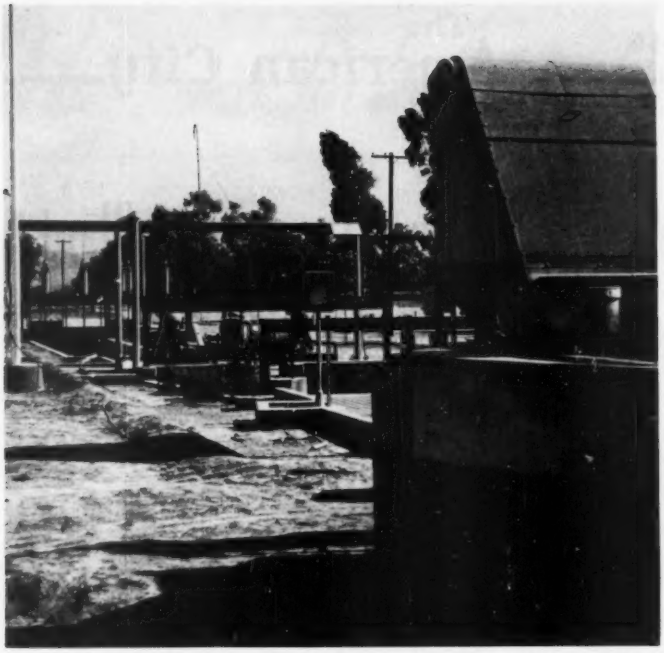
But to require 20-mgd performance from a 12-mgd plant was too much even for the most careful operation, and again the Salt River began to show signs of deterioration. So the city called in Headman, Ferguson and Carollo, consulting engineers from Phoenix, to make the corrections and design the plant improvements.

Superintendent Dario Travaini looks over his improved plant from the door of his new office and laboratory.

The designers began at the intake works. There they put two Link-Belt mechanically raked screens to insure continuous removal of the coarse solids. These are sent through Jeffrey grinders and are returned to the sewage flow so that they can be collected with the remaining sludge in the settling tanks.

They next turned their attention to the grit chambers. There are now two of these, measuring 10 feet by 60 feet by 4 feet, with nine inches of water depth and Jeffrey collecting mechanisms. Two Parshall flumes below the grinders meter the sewage while three of the same type of flumes below the grit chambers equalize the flow into the primary tanks.

Two new primary coagulation and



The sewage passes through mechanical bar screens and then the grit chambers.

settling basins ease the sewage-treatment burden. These are 160 feet long and 63 feet wide, with 10 feet of water depth. The coagulation ends are equipped with Chicago diffuser tubes with Jeffrey collecting mechanisms in the settling ends. The old primary clarifier, an 85-foot Dorr Squarex tank with a 10-foot side-water depth, now has a coagulation tank ahead of it measuring 45 by 63 feet, with a 10-foot water depth.

Sewage next passes through the aerators. There are six of these aeration basins, each 330 feet long, 26 feet wide, and 14 feet deep, equipped with Chicago Pump Company tapered aeration design with fixed diffuser tubes.

The sewage then goes to secondary clarifiers, two new and one old; each is a 140-foot Dorr Squarex tank with 9-foot side-water depth. From here the treated effluent goes to the Salt River. The treatment reduces the BOD-count from 200 ppm to an average of 10 ppm.

Digesters

The rebuilt plant has two new digesters, each 90 feet in diameter and 30 feet deep. The primary digester has a concrete dome roof, while the secondary has a steel gas-holder cover. These collect gas for use in dual-fuel engines.

Air for coagulation and aeration is supplied by four G-E 1,000-cfm centrifugal blowers supplemented by two new 8,500-cfm Roots-Connersville blowers driven by a pair of 280-hp Worthington dual-fuel diesel engines.

A new 35-foot Dorr sludge thickener with 11-foot side-water depth was built and a similar old thickener rebuilt and provided with new mechanism.

Odor Control

It is important not only to treat the sewage so that it will not cause downstream difficulties, but even more to collect and treat the sewage so that no odor problems arise. The treatment prevents the city from being a nuisance to its neighbors, but the odor-free collection prevents the same foul nuisances from troubling the people of Phoenix.

To control odors, Superintendent Dario Travaini introduces ferrous chloride into the city sewer lines, and adds ferrous sulphate just ahead of the grit chamber. Activated carbon is occasionally added to inhibit any extreme odor conditions. To provide adequate quantities of low-cost ferrous sulphate, crude sulphur and scrap iron are used as raw materials. The conversion is accomplished by an improved aut-oxidation process developed by Harmon E. Keyes, Phoenix chemical engineer.

The plant is operated under the direct supervision of Superintendent of Water and Sewerage Travaini.

St. John Puts Teeth Into Housing Enforcement

SWEEPING powers have been granted the Saint John (New Brunswick) Housing Commission in an effort to improve the city's sub-standard housing conditions. Under authority of the New Brunswick Housing Act, the commission now has power to order owners to bring their houses up to minimum standards, to make loans to assist them, and, if necessary, to take over and repair buildings at the owner's expense.

A revolving fund has been set up to assist owners to improve their buildings. St. John has become the first city in the province to make use of the authority granted under the provincial housing act.

The minimum standards set up by the commission provide that each dwelling unit must have at least two rooms, bath, and toilet; that the minimum area must be 300 square feet and 2,400 cubic feet, exclusive of halls. Maximum use of rooms for sleeping quarters are: for one room, two persons; for two rooms, three persons (all of one sex, or man, wife and one child under 12 years); three rooms, five people (exclusive of children under 12) and four rooms, seven persons. Kitchens may not be used for sleeping purposes.

Living rooms and bedrooms must have outside light, and ventilation through moveable glazed windows. Electric lighting must be provided for all rooms and natural lighting must be such that artificial lighting will not be required on a normally bright day.

Every flat or apartment must have a sink in the kitchen and a bathroom complete with toilet and bathtub.

Fifteen States Ban TV In Motor Vehicles

ACCORDING to the American Public Works Association, nearly one-third of the states now either prohibit the operation of a motor vehicle equipped with a television receiver in view of the driver or forbid the installation of such a receiver at a location within the driver's vision. Among the states approving television-control legislation this year were Colorado, Connecticut, Indiana, Illinois, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, North Carolina, Oklahoma, Pennsylvania, Vermont, Washington and Wisconsin. A television bill approved by the New Jersey legislature was vetoed by the governor.

Typical of the law regulating TV in motor vehicles is that of Oklahoma, which prohibits "the equipment of a vehicle with a television set, the screen of which could be seen by any person occupying the seat from which the motor vehicle is operated." Similar bills were introduced in 30 state legislatures this year.

Officials & Citizens Good Health And Christmas Seals

By BAILEY B. BURRITT
Executive Secretary
Health Maintenance Committee
Community Service Society of New York

THE officials and citizens of virtually every municipality are eager for higher standards of municipal services. They recognize increasingly that honest, intelligent, and efficient management of municipal affairs is the price that must be paid for such standards. Too often, to be sure, there is apathy. Again and again, however, we see evidence of citizens rallying to support officials who demonstrate integrity with careful management and skillful planning of basic municipal services.

Citizens' interest covers the whole range of municipal services. It expresses itself most often and most vigorously in their concern with regard to schools, hospitals, and health services. It does not take a great deal of scientific evidence to convince the average citizen that good schools, good hospitals and health facilities maintained with high standards mean much to him and his family and have much to do with the good name of his community.

Sickness Yielding to Science

The intelligent official or citizen has glimpsed the fact that the rapid development of medical science has made possible the prevention of much sickness and the maintenance of much better conditions of health, together with the possibility of a longer life. He has seen diptheria, which his own parents formerly dreaded as a killer of young children in families, brought virtually under complete control. At the same time he has observed that the danger of deaths from scarlet fever, measles, whooping cough, and other acutely contagious diseases, while not completely eliminated, has been greatly reduced. He is aware that within two decades the average length of life has been increased from 51 to 67 years.

The civic leader is still worried about heart disease, cancer, and other degenerating diseases affecting primarily old age that have not as yet yielded to scientific control. He is, however, conscious of the fact that tuberculosis, one of the great killers of his period and particularly that of his parents, has been declining. While he may not be conscious of the precise fact that in two generations the death rate from this has been reduced from 202 per 100,000 population in 1900 to the provisional death rate in 1948 of approximately 30, he does know that tuberculosis is yielding to science and improved standards of living. He has been told and comes to believe that if his and other communities plan wisely and act vigorously, this disease can also be made to cease taking fathers and mothers during their most productive years.

This official or citizen is roughly aware of the fact that good community and municipal planning of housing, giving ample light and ventilation and space for recreation, has something very real to do with general health conditions, including the avoidance of tuberculosis. He is conscious of the fact that where congestion and low income are associated in his community, there is more illness and more tuberculosis. While he may not have more precise facts, such as have been developed in some of our leading cities, that tuberculosis sickness and death rates often are five or six or many times greater in areas of the city combining congestion with low income than in the better areas, he is generally aware of the inverse relationship between poor housing conditions, combined with low family incomes, and good health.

Further Control of Tuberculosis

He is also increasingly aware of the fact that in order to gain further control of tuberculosis, health examinations, good clinic facilities, and an adequate volume of hospital care under good management are necessary. When these facts are emphasized and plans are made in his community for improving these necessary facilities for the control of tuberculosis, he stands ready to support those efforts even if it means some increase in the city's budget and tax rate.

At the present time, municipal officials and health departments are increasingly aware of the educational efforts to induce all citizens to secure X-ray and clinical examinations in order to discover unknown cases while they are in their incipient state and can be treated and restored to health and their usual occupations. But finding new cases is inadequate unless there is adequate provision in each community for treatment. Most case-finding surveys, the strain of wartime pressures, and an increase in population are increasing the number of known cases, and the general improvement in the modern treatment of the disease is increasing the readiness of cases to demand hospital care. This is making it necessary to increase hospital facilities to meet the need. It has been pointed out, for example, by Dr. Herbert R. Edwards and Mr. Godias J. Drolet, of the New York Tuberculosis and Health Association, that while the U. S. death rate from tuberculosis dropped 27% from 1940 to 1947, the registration rate of new cases rose 22%. The result is that the tuberculosis-hospital facilities of many communities are far below requirements. Treatment is inadequate because of over-crowded hospitals. Many patients, who if hospital facilities were adequate would accept hospital care, now decline to do so.

Citizens who are concerned with this are now asking the authorities of these communities whether hospital facilities cannot be increased until they are sufficient to care for all active open cases of tuberculosis, the type that spreads the disease.

Christmas Seals

One of the great factors in securing these necessary facilities for dealing with the control of tuberculosis in any community has been the efforts of tuberculosis and health organizations which have been organized in practically every municipality and community. This is the season of the year when these organizations present the facts anew to the citizens. They emphasize the work to be done and spell out in detail what is necessary. Already there is a generous response on the part of citizens to purchase Christmas Seals that make these efforts possible. There are few correlations more striking than the increase in the volume of funds raised through Seal sales and the decline in the tuberculosis death rate. For these reasons, citizens readily see the relation between their purchase of Christmas Seals and the increase in the control of tuberculosis in their community. Few citizens, therefore, will want to resist buying Christmas Seals.

Smoke abatement no longer is enough—today's programs cover smoke, dust, and fumes

Let's Make Air Pollution Control Effective

By **WILLIAM G. CHRISTY**
Smoke Abatement Engineer
Department of Smoke Regulation
Hudson County, N. J.

IT IS all wrong to speak of air-pollution control as a campaign. Actually it is more like a 30-year war.

Although control of air pollution seems comparatively recent, it is actually nearly 700 years old. In the year 1257, Queen Eleanor, wife of King Henry III of England, moved from Nottingham to Tutbury Castle to avoid the "unendurable smoke from sea cole." Bituminous coal had been discovered a few years previously. It was called "sea cole" to distinguish it from charcoal. History records that in 1273 the British Parliament passed a law prohibiting the use of "sea cole" in England because of the "smoke and unsavory vapors therefrom." Despite the law, the use of coal increased and the agitation for smoke abatement continued.

In 1307, after atmospheric pollution grew worse in London, King Edward I appointed a Commission of Oyer and Terminer to enforce the anti-smoke laws. The members were instructed "to inquire of all such who burned sea coal in the city and parts adjoining; for first offense, to assess great fines and ransoms; and for second offense, to demolish their furnaces."

Atmospheric pollution really became a problem with the rapid industrial development following the perfection of the steam engine by James Watt in 1765. In this country, the movement to do something about smoke started in the Middle West, where bituminous coal was the prevailing fuel. In the early 1850's, St. Louis passed an ordinance requiring a building owner to extend his chimney above an adjoining structure. In 1864 in the same city, a man sued his neighbor for damages caused by a smoking chimney. The courts awarded him $50 damages.

First Smoke Ordinance

The first smoke ordinance was passed by Chicago early in 1881. Cincinnati adopted one a few months later. Other pioneers included Pittsburgh, St. Louis, Cleveland, Detroit, and Salt Lake City.

The financial loss caused by smoke was well established in a survey in Pittsburgh in 1912-1913, by the Mellon Institute of Industrial Research. This report shows that the annual cost of air pollution then was $15 to $20 per capita. With the increase in costs since then and with new forms of pollution, the cost today is conservatively $30 to $40 per capita.

For many years, we thought of air pollution principally as a smoke problem. Twenty-five or 30 years ago, however, coal began to be burned in pulverized form. This resulted in the discharge of "fly ash." Also, the diversification of industry and the introduction of new processes have resulted in increased fume discharge. Furthermore, most of the newer laws are called air-pollution control ordinances. Such ordinances cover smoke, soot, dust, and fumes. (The word "dust" is used by engineers to include fly ash, cinders, and solid particles of any kind.)

Dense Smoke a Sign of Waste

The old idea persists that smoke is a sign of prosperity. Illustrations of plants on letterheads, in catalogs, or in Chamber of Commerce bulletins even now show smoking chimneys. Actually, dense smoke is a sign of waste and inefficiency. Black smoke indicates combustion, and also that the most valuable part of the fuel is unburned and being thrown away.

We Americans are a wasteful people. At present prices, a conservative estimate shows that $800,000,000 worth of fuel is wasted annually through preventable inefficiency. In my smoke-abatement work, I have personal knowledge of remarkable savings accomplished by plant modernization. The Hudson County, N. J., plant of a well-known meat packer is saving $47,000 a year in fuel after investing $131,000 in new boilers and stokers. The return on the investment was 36%. In another plant, $16,000 is the value of the fuel saved every year after investing $40,000 in a modern oil-burning installation. Here the return on the investment was 40%.

More than 200 American municipalities have adopted smoke-control ordinances. In the vast majority of cases, the density of smoke is measured by the Ringelmann Chart. In general, emission of dense smoke of more than a few minutes' duration is prohibited.

Any one interested in an up-to-date ordinance should procure a copy of "Example Sections of a Smoke Regulation Ordinance," published by the American Society of Mechanical Engineers. This compilation is the result of nearly 10 years' effort on the part of the Smoke Law Committee, Fuels Division, A.S.M.E.

In the past, most such ordinances have been enacted by cities. Hudson County, N. J., was a pioneer in adoption of a County Smoke Regulation Ordinance. During the past few years, Los Angeles County, Calif., Milwaukee County, Wis., and Allegheny County, Pa., have done the same thing. Several years ago Massachusetts enacted a State Smoke Law. This has been enforced only in the Metropolitan District of Boston, taking in a region within a 25-mile radius of the City Hall.

As atmospheric pollution knows no boundary lines, many of those interested in its control have thought about air-pollution regulation on a regional basis. For several years the states of New York, New Jersey, and Connecticut have had an Interstate Sanitary Commission to control stream and harbor pollution in the Greater New York Metropolitan District. It seems logical to control air pollution in a similar manner.

In order to enact county smoke legislation, it has been found necessary, in most cases, to have an enabling act passed by the state legislature. With suitable legislation, it would probably be possible to set up interstate or regional air-pollution control in metropolitan centers crossing county and state lines.

One principal reason for failure to secure adequate control of air pollution has been inability to visualize the magnitude of the job. Abatement and eventual elimination of air pollution is a *major community housekeeping problem.* In the past, in so many places, the smoke problem has been thought of in *too small terms.* Some kind of a law was passed and two or three smoke inspectors appointed.

Elimination of air pollution must be considered in the same terms as pav-

ing and maintaining streets, installing an adequate sewer system, providing an ample supply of pure water, and maintaining a good moral atmosphere. I must repeat—it is a major community housekeeping problem.

In my opinion, St. Louis has done an outstanding job in cleaning up what was at one time one of the smokiest cities in the country. Washington is now one of the cleanest American cities, with respect to air pollution. Very good work has also been done in Pittsburgh, Chicago, and Cincinnati. Salt Lake City is also reported to be quite successful in a difficult job.

When any community organizes for reduction of air pollution, it is important to secure the right kind of individual to head the work. Primarily, he should be a good combustion engineer. He must also be an administrator, a diplomat, a public speaker, and have initiative and lots of tact. He should have practical experience in burning fuel and not be afraid to get his hands dirty. Above all, he must have persistence and ability to get things done.

Many small cities, with a population of perhaps 10,000 to 75,000, have smoke and dust problems. But their budgets may not enable them to pay a salary to attract a capable man. Here is a plan which I believe is practical. A few near-by cities could cooperate and employ jointly a qualified smoke-regulation engineer. He could organize the work in each of three or four cities, spending, say, six months in turn in each city. In time, he could train a man to carry on in each city under the supervision of the smoke-regulation engineer.

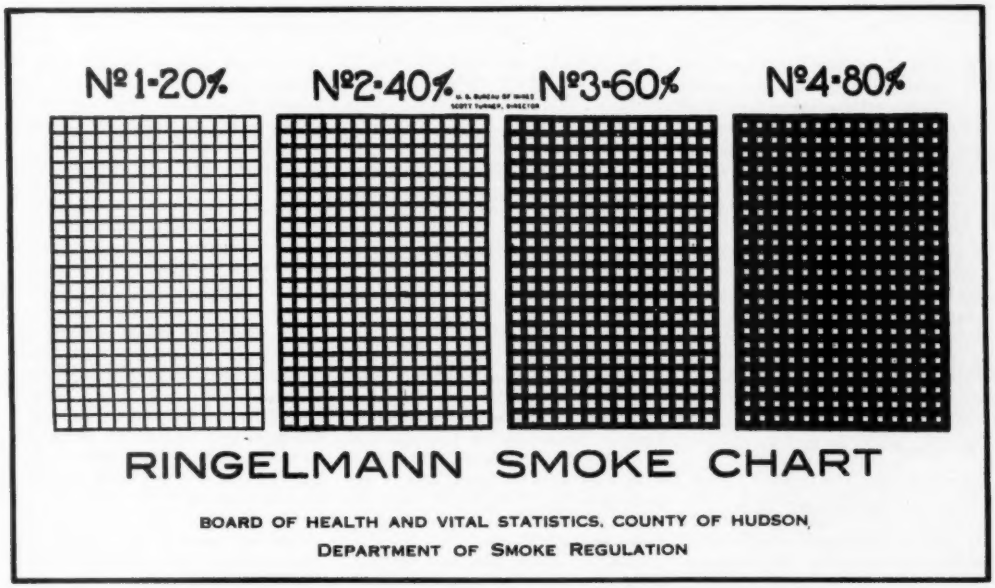
The public often expects results much more quickly than it is possible to accomplish them. A long-range program is the only kind which will be successful. We must never overlook the fact that this is a major community problem. The nature of the work is such that time is required to accomplish worth-while results. It usually requires three years to eliminate enough visible smoke in a community so that the general public agrees that there is a decided improvement. Elimination of dust and fumes takes longer. In most communities, five years are required to make a substantial reduction in dust and fume emission.

There is still an old-fashioned notion that a drive to cut down on smoke and dust will hurt business and drive industries out of a city. It just isn't so. In nearly 25 years' experience in this work in St. Louis, Mo., and in Hudson County, N. J., I have never known of any plant moving away on account of smoke-regulation enforcement. There have been instances where new plants refused to locate in a smoky city because they did not want their personnel to live in such a dirty place.

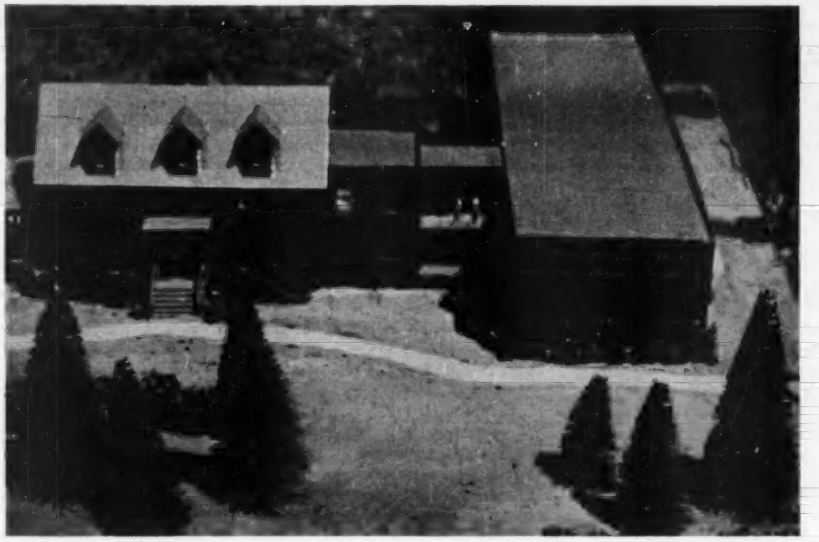
Many people think that the way to clean up air pollution is to pass a strict law and then prosecute all offenders in court. Experience has shown that better results can be obtained by securing cooperation than by use of the "big stick." There must be an ordinance and the few who refuse to cooperate should be prosecuted. But in the long run, a properly organized and administered cooperative program will obtain better results.

As previously mentioned, a long-range program is one of the essential requirements. Vision is essential, so that over the years outmoded plants and equipment will gradually be replaced with modern and properly designed plants. One of the requirements of such a program is a system of installation permits and operating certificates for all fuel-burning equipment. Just as every municipality has a building code to insure safe and proper construction of structures, so there ought to be an air-pollution code to make sure that all new equipment complies with clear-stack requirements. If there is no control over new installations, potential offenders may be added to the list daily.

Another necessary feature of a successful control program is that the efforts must be continuous. Many American cities have carried on successful programs for a few years. Then, owing to change of administration or a period of depression, the appropriation for air pollution was eliminated or cut so drastically that the work done was ineffective. The result was that within a few months, air pollution was almost as bad as ever, and several years' efforts were lost. If all the sporadic, misdirected efforts to reduce air pollution had been concentrated and made continuous, there could be a dozen spotless cities in America today.



The Ringelmann Smoke Chart, long-time guide of smoke-abatement engineers.



Model showing how new hospital addition at right will be attached to old hospital building.

City and County Join In Building New Hospital Addition

By STUART ANDERSON, Ph.D.
The Stout Institute
Menomonie, Wis.

HOSPITAL facilities in Menomonie, like many other communities in the sparsely settled northern section of Wisconsin, had been meager for some time. Built in 1915, the 28-bed hospital had been adequate when the city's population was around 4,000. But with an estimated population of about 8,000 in 1948, plus an additional 20,000 in the county, the crowded conditions became intolerable. Ambulances transported patients 25 miles to hospitals in Eau Claire weekly. Beds in the corridor were commonplace. However, the city had nearly reached its bonded debt limit and was not in a financial position to initiate a new building program.

Hospital Financing Started

Prompted by these critical conditions, the Common Council in 1946 voted to set aside $50,000 over a three-year period, to be earmarked for a new hospital addition. The program was given a boost in November, 1948, when the Wisconsin Hospital Survey and Construction Division of the State Board of Health reported that Menomonie had been given an "A" priority and was thirteenth on the list to receive financial aid from the Federal Government.

The Dilemma: Hospital vs. High School

But Menomonie's needs were not limited to a more adequate hospital. The high school, built in the 1880's, had long been overcrowded. The North Central Association of Colleges and Secondary Schools, the regional accrediting agency, had warned the city Superintendent of Schools that the high school would lose its satisfactory rating unless immediate steps were taken to provide a more adequate physical plant.

It was pointed out that the bonded indebtedness for the hospital addition would delay the building of a new high school. As an alternative, some people advocated raising funds for the hospital by popular subscription. Finally, in desperation, the Common Council decided to submit the hospital addition to a popular vote at a special spring election. The people were to be asked to decide whether or not the city should bond itself for $100,000 for the construction of an addition to the city hospital.

However, before this resolution could be voted upon, spokesmen for the newly organized Menomonie Civic Association appeared before the Common Council and suggested that the county be invited to share the costs of the new addition. One of the speakers told the Council that the hospital was used by a majority of people in the county and therefore this larger governmental unit should share in its support. The writer, who had been previously named to get the viewpoint of the county board on the possibility of the county and

city's getting together on the construction of the new addition, told the council that 23 of the 35 members had been interviewed and that 12 were in favor, one was opposed, and 10 were undecided and wanted more information.

The townships near the city were inclined to favor the merger, while those on the outer edge were not as favorable toward the idea. It was pointed out that the city paid only 23% of the taxes levied in the county. Dunn County has a population of approximately 30,000, with nearly 8,000 living in the City of Menomonie. This would seem to indicate that potentially at least one out of every three persons using the city hospital would be from Menomonie.

Although the mayor originally stated that he couldn't see much advantage in the county's coming in on the proposition, he was not directly opposed to the idea. He believed that this action might "cloud the issue."

After considerable discussion pro and con, the Common Council voted to adopt a resolution petitioning the county board to assist them with the new hospital.

County Board Adopts City-County Hospital Merger

The proposed addition received one of its greatest boosts when the Dunn County Board of Supervisors accepted the city's offer and adopted a resolution merging the two governmental units in the construction, maintenance, and operation of the new structure. But the victory was not won easily. After failing to obtain the required majority by one vote on the first ballot, a recess was called. Advocates appealed directly to the County Board asking them not to look only at the money involved, but rather to consider the project from the humanitarian standpoint. It was also brought out that because two-thirds of the hospital patrons came from outside the city, the county was under a moral obligation to support the project. On a second vote the resolution was passed.

Joint Ownership Plan

According to the county ordinance, adopted in May, 1949, the county will contribute to the joint enterprise, in cash, the sum of $50,000 as part of the building fund, $25,000 of which is payment for half interest in the hospital. The city will pay $25,000 toward the hospital addition within the year for a total of $75,000.

Because there was no precedent for the cooperation of city and county governments in such a project, it was necessary to appeal to the State Legislature. Under the leadership of Assemblyman Earl Hansen, this was accomplished in what is now known legally as Chapter 53, Laws of 1949. This new law states that a city and county may jointly own and operate a hospital, and issue joint mortgage revenue bonds for the cost of construction and improvements of the structure.

Financing Plan Adopted

Approval of the issue of $230,000 in joint hospital mortgage revenue bonds for the county and city shares in the construction of an addition to the newly named Memorial Hospital was voted by both governmental units in July 1949. While the City Council voted unanimous approval of the bonds, the County Board vote was 26 affirmative, 8 negative, and one absent.

Negotiations for the sale of the bonds all to be paid off by 1977 on an amortization plan with interest at 3% was conducted by the officers and finance committees of the two boards. When the arrangements had been completed, the agreements of sale were submitted to the County Board and City Council in August 1949.

The total cost of the addition will be $443,894, according to the resolution. A federal grant will provide $144,631 of this amount, and the joint hospital fund and donations amount to $75,000, leaving $230,000 to be raised by revenue bonds.

The new law provided for the establishment of a joint county-city hospital board, to be composed as follows: two to be appointed by the County Chairman with the approval of the County Board; two, by the Mayor and confirmed by the Common Council; and one jointly by the County Board chairman and the mayor, confirmed by the County Board and the City Council.

Acting within the provisions of this law, the newly appointed hospital board employed a manager who will be responsible for the general operation of the hospital.

The annual budget will be submitted to the two boards and if additional funds are required the governmental units will guarantee them.

School Needs Are Also Met

Because of the unique solution to Menomonie's hospital financing problem, the community decided to go ahead with a new addition to the high school, including a gymnasium and six classrooms. The cost of this addition, now being built, is $284,600. An addition to one of the elementary schools, which will cost $69,300, is also being constructed. Arrangements to finance these two school buildings have been made by a regular bond issue to be paid over a 20-year period from general property taxes.

Federal Official Doesn't Know - Answer— Charleston Must Solve Own Problems

CITIZENS of Charleston, W. Va., recently got an unusual response from a federal official when they invited him to tell them what the Housing Act of 1949 means to their city.

Speaking on that subject before the Charleston Exchange Club, Deputy Administrator B. T. Fitzpatrick of the Housing and Home Finance Agency, said he didn't know the answer—that the question was one that only Charleston could answer.

The answer, he said, hinges on the answers to several other questions, such as:

1. What kind of a city should Charleston be?
2. How should Charleston develop and grow in the years to come?
3. What should be done about Charleston's slums?
4. Which slum areas should be cleared first?
5. When a slum area is cleared, should it be rebuilt with housing, or used for a parking garage or a playground, or for business or commercial purposes?
6. How can Charleston provide adequate housing for low-income families livin the slums?
7. How should these decisions on slums and low-rent housing be related to Charleston's present and future needs for transportation, and for schools and other facilities?

Mr. Fitzpatrick explained the federal assistance made available to local communities under the new Housing Act—if they want it and can demonstrate that they need it. The Act contains provisions for federal loans and grants to communities for acquiring and clearing slum areas, and for federal loans and annual subsidies to communities for development and operation of low-rent public housing for families of low income living in inadequate housing.*

* See "What Cities Should Do Now to Qualify for Federal Redevelopment and Housing Aid," by Raymond M. Foley, Administrator of the Housing and Home Finance Agency, in THE AMERICAN CITY for August 1949, on page 93.

Buy Christmas Seals!

Canada Houses Her Veterans

This article, reviewing recent Canadian housing experience, is being published at a time when legislation is before the Canadian House of Commons, attempting to formulate a new housing policy. These proposals include a new division of the responsibility of providing low rental housing which may profoundly affect the future development of Canadian communities.

By H. PETER OBERLANDER*
Central Mortgage and Housing Corporation
Ottawa, Canada

BY THE end of 1949 Canada will have built 370,000 housing units since 1945, amounting to an average annual construction of 75,000 units; in U. S. terms, on a comparable per capita basis, this would amount to 4,600,000. This rate of residential construction is considerably above any previous annual volume in Canada, even in the gilded 'Twenties—only about 58,000 units were built in 1928, the peak year.†

The largest single entrepreneur, responsible for 10% of this total production, has been the Federal Government; under a variety of policies and administrative programs it has built on direct account 36,000 units (1945-49) for its returned soldiers and their families. This is an immense achievement and has materially contributed to the fact that every ninth Canadian family today lives in a post-war home.

Any traveler through Canada cannot fail to see and recognize these houses—whether he travels by road, rail or air. They are to be seen on the approaches to every Canadian city, they have changed many a town's skyline, particularly on the prairies. They are recognizable because they are mostly new, they are cut to a pattern, and they are arranged in compactly organized projects.

The agency responsible for this operation is the Central Mortgage and Housing Corporation (C.M.H.C.), a Crown Company wholly owned and operated by the Federal Government. The Corporation constitutes the largest single building entrepreneur and landlord in Canada today and has played a decisive part in shaping the post-war expansion of residential areas of our cities.

The Policy Evolves

Canada has no public-housing system comparable with that in the U. S. or Great Britain; a series of administrative developments, most of them prompted by the pressure of circumstances, have produced this immense federal program of rental housing. The evolution of this policy has been subject to several principal influences: of fundamental importance was the position taken by the Dominion that housing was a matter of "property and civil rights," and, therefore, came constitutionally within "an unquestioned field of the provinces under peacetime conditions."

However, in 1946 the Minister of Reconstruction summarized the present policy in these terms:

> It is the policy to ensure that as large a portion as possible of housing be built by private initiative. The Dominion Government will lend every facility to private enterprise . . . if, however, with all the assistance we can provide . . . the houses required to substantially improve the housing standard of the Canadian people are not forthcoming, then the Dominion Government will take a direct position in the housing field.

The Federal Government had been moved to direct action before; five years earlier when the steadily expanding war production threatened to precipitate an acute housing congestion and shortage, a wholly government-owned housing corporation was established whose explicit purpose was "to enable the factories and war plants to function by providing houses for the men and women brought in to be employed there." This Crown Company, incorporated as Wartime Housing, Limited, was to construct rental housing for munition workers, both with families and without. Wartime Housing, Ltd., proved to be the foot in the door of public responsibility for the provision and administration of rental housing in Canada. With the end of the war, the original purpose of Wartime Housing was extended to include the provision of housing for the returning soldier and his family and, with some changes in administrative procedure and responsibility, has since become the method of building low- and medium-rental housing in Canada.

Federal-Municipal Housing

Federal-municipal relations on veterans' rental housing have been characterized by a series of annually changing agreements on the allocation of specific responsibilities within the over-all policy; many basic problems inherent in the direct relationship between these two levels of government were settled by *ad hoc* decisions which often looked no further ahead than one calendar year.

Federal housing construction was predicated on the concept of immediate rental to veterans of World War II, but ultimately on the sale of the units. The physical result, therefore, was somewhat circumscribed and took the form of detached single-family houses, fairly uniform in accommodation and general architectural character from coast to coast.

In broad terms, the policy formula for veterans' housing provided that construction and maintenance of the dwelling units be the responsibility of the Federal Government and the provision of land and services be that of the municipality. Administratively this broad concept was elaborated for each project, with close adherence to a "standard municipal agreement" for uniform application across the country.

The entire program was conceived as a limited emergency plan both during

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* The author has just completed a Dominion-wide tour in the course of which he has seen more than 26,000 houses of the total built by the Federal Government from Coast to Coast. He visited 110 cities and towns and traveled closed to 8,000 miles.

† The Curtis Report of the Housing and Community Planning Subcommittee to the Dominion Government's Advisory Committee of Reconstruction, appointed in 1942, estimated the total urban housing program for the first post-war decade as 606,000 units and recommended a minimum of 50,000 units to be built during the first post-war year.

the war and after, and as such hardly attempted to estimate accurately the full need, either quantitatively or qualitatively. The extent of the post-war program was determined by the number of returned soldiers in every community. From 1944 to 1947 it was customary to negotiate annually with the municipalities for successive housing projects comprising a more or less arbitrary number of units, usually in groups of 25, 50, or 100 and multiples thereof as an administrative convenience, but deliberately below the known veterans' demand.

Land Acquisition and Municipal Agreements

During the war, Wartime Housing, Ltd., had assumed full responsibility for all phases of housing war workers. As the company moved into the veterans' field, the Federal Government insisted on the positive support of the municipality through their contribution of the building land. These lots had to be fully serviced and deeded outright to the Crown for the nominal consideration of one dollar per lot.

As a Crown Company, Wartime Housing, Ltd., could own and operate housing totally tax-exempt, but it was early realized that some payment to municipalities for specific services would have to be made in lieu of taxes. The rate of payment was set at the flat sum of $24 and $30 for a two- and three- (or more) bedroom unit, respectively. This arrangement was continued for the veterans' rental program and was to run for 10 to 15 years, varying with the cost of housing and its service installations. It was calculated on the basis of a net return to the company sufficient to amortize the initial investment to a level of about $1,000 at the end of the period. Each municipality was given a three months' irrevocable option to purchase all the housing units *en bloc* at a price of $1,000 each, together with the fixtures and land held by the company at the end of the agreement period.

Each municipality was required by the agreement to seek from its parent provinicial government the necessary approval of these arrangements. It waived the application of local building by-laws and zoning regulations to these houses and agreed to furnish all standard municipal services to the tenants without any special levy or assessment.

Tenants' Selection

A point-rating system was devised to select the tenants from among all locally eligible veterans and determine their sequence of moving into the houses.

The rental structure for veterans' housing was based upon the levels previously established for war workers' homes. During 1944-47, the rental range was $22 to $32 per month for a four- to six-room unit, with slight variations according to differing regions.

Until 1947 the houses themselves were identical to those built by Wartime Housing, Ltd., during the war. The same considerations of speed and economy still applied. Each project was confined to the narrow range of floor plans of four- to six-room houses of similar dimensions and exterior finish. The only structural change was the cement-block or solid concrete foundation that replaced creosoted wood posts, since a greater permanency was expected. Basements in general were ruled out because of the high capital cost in relation to rents charged.

Site Selection and Development

Aside from the emphasis on economy, the requirements that the municipality should supply serviced land restricted opportunities for any comprehensive community planning. The pressure of the housing need forced the Federal Government into accepting a variety of building land that often would otherwise never have been developed for residential purposes. With few exceptions, the Federal Government could only insist upon minimum lot sizes and some minor readjustments of land subdivisions. The Central Mortgage and Housing Corporation's experience shows essentially two sources of municipal land for veterans' housing: land in odd lots

The project at Trail, B. C., set in a natural alcove in the Columbia River Valley. Inset: One of the smaller units.

sprinkled throughout the town which, over a period of time, had reverted to the municipality for taxes; these lots were usually fully serviced and the town was anxious to put them to productive use. By housing veterans there it received some tax return; these lots occurred almost anywhere within a town and had all of the usual advantages and disadvantages of small urban lots. Apart from this "lot in-filling" process, more than half of all veterans' housing was built on land on the fringe of cities. In few cases was C.M.H.C. allowed any choice of land since the town was anxious to develop the fringeland that was most readily serviceable with water and sewers and that could be cleared cheaply at the particular moment. Here the significant opportunity seems to have been missed by the municipalities that did not assume a total view of their urban needs and insure that this segment of housing would become an integral part of the organic growth of the whole town. Short-range and sometimes wholly irrelevant considerations (from the planning point of view) prompted many municipal site selections and compelled C.M.H.C.'s acceptance.

1948 Rental Housing

Despite this fairly vigorous housing program, by the end of 1947 the demand for more rental housing had become increasingly insistent. Consequently the Federal Government somewhat liberalized its veterans' rental policy, especially by providing "more favorable terms to the municipalities" and by placing added emphasis upon flexibility and improvement in the physical design of the dwelling units and their project sites.

The principle of municipal participation was retained, but reinterpreted:

- The land development costs to be borne by the municipality were limited to a maximum of $600 per housing unit. Excess costs were to be capitalized into the value of the house and recovered through a higher rental. In practice, excessive land-development costs usually prompted C.M.H.C. and the municipality to look for an alternative site rather than be forced to charge higher rents.

- The Federal Government, through its Housing Corporation, offered to pre-finance these land-development costs up to the $600 limit. These advances, with a 2% interest, were recoverable by C.M.H.C. through deductions from the payment in lieu of taxes due to the municipality over a maximum of 10 years.

- Rentals were to be increased to $29, $33, and $37 for a 2-, 3-, and 4-bedroom house, now with a full basement. This was to allow for an increased payment in lieu of taxes to the municipality of $70, $75, and $80 for each of the above houses, respectively. The rents under this agreement were calculated on the basis of 60 cents per hundred dollars of the Dominion's total expenditure, but not including assistance by the municipality.

- The Dominion offered to share equally with the municipality any gains or losses realized upon the liquidation of the investment by a sale of the houses; in other words, the Federal Government promised to make a contribution equal to the "municipal participation" prior to recovery of its initial capital investment.

In general, the 1948 formula allowed for more flexible arrangements, designed to meet the varying needs of different municipalities and thus increase local interest in rental housing. The intention of greater flexibility and variation was clearly expressed by substantially different house designs. However, the five-room house seems to have become a fairly general standard throughout Canada under this program, simply because its capital cost allowed a rent to be set at what was considered a reasonable level; yet some regional differences were introduced in the designs and a better variety of building materials encouraged.

The Project at Trail, B. C.

One of the most interesting projects under the 1948 program has been developed in Trail, B.C., the important mining and smelting community in the Canadian Rockies. Here in a town of about 11,000 people, almost entirely dependent on employment in the Consolidated Mining and Smelting Corporation, C.M.H. C. was asked to build 175 houses for veterans last year. Trail is situated on both sides of the Columbia River on narrow terraces enclosed by the mountains. Despite the obvious lack of good building land a basically suitable site was found; it was outside the city limits and required a special incorporation. It is a flat piece of bench land in a natural alcove formed by the very steep hills and the river. In terms of the existing town it was very choice residential land, consisting of two horseshoe-shaped plateaus concentric to each other which suggested two separate areas of housing, both having full advantage of the view up and down the Columbia. The development plan, as well as the siting of individual units, pays great respect to the contours and site orientation and demonstrates how the nature of a site should properly influence the over-all design. Through the skillful preservation of the few existing trees and taking full advantage of the dramatic backdrop of the surrounding hills, studded with sage brush, an aesthetic whole was created. The houses themselves are of the two- and three-bedroom design with several different exterior-finish materials. The streets carefully parallel the contours and the living areas of houses generally face onto green strips.

Carefully considered space relationships between each unit and the grouping of them into small sub-units within a larger whole overcomes the inherent dullness and monotony of the street facade; a pleasant rhythm of open and enclosed spaces is set up throughout the development. This arrangement seems to eliminate the characteristic weakness of large-scale housing cut to one physical and social pattern; usually a solution to this problem has been sought in vain by the deliberate randomization of applied architectural details and materials.

Conclusion

A substantial immigration and an increased rate of family formation has caused Canada's spectacular post-war urban growth. Most municipalities were totally unprepared to cope with it. Especially in the residential expansion few, if any, local authorities seemed to be able to guide it.

When the opportunity came for them to add substantially to their housing stock through a veterans' rental program, they had no method or machinery with which to decide on its appropriate nature and size or its proper location within the over-all urban framework. The opportunity of veterans' housing projects to form part of a larger city plan seldom arose, since only a minority of Canadian cities had any established scheme for their future development. Canada's critical problems are in the fringe areas. The ever-receding open spaces and her unparalleled boom in natural and human resources have made her cities and towns frontiers of expansion filled with the scintillating spirit of growth and adventure.

It seems that here the important change must take place: Canada's boundless energies must be harnessed in support of a well-ordered urban environment. In low-rental housing, irrespective of which level of government will now become effectively responsible for it, an integrated planning effort on the municipal level will have to precede, or at least accompany, any local large-scale housing. Houses alone are no longer enough; they can only be significant if they become part of a whole, a fully operating city.

Canada's urban growth must no longer be conceived of in abstract terms of housing "projects," apart from the community as an organic whole, an environment with a physical, social, and visual diversity which will stimulate a truly creative community life. In most cases we still have this chance; Canada's cities have not yet outgrown themselves, lost their cohesion, their common identity, or their purpose; the present is a most critical time for urban Canada.

How Reno Handled Last Winter's Snow

By E. R. CANN
Assistant City Engineer, Reno, Nevada

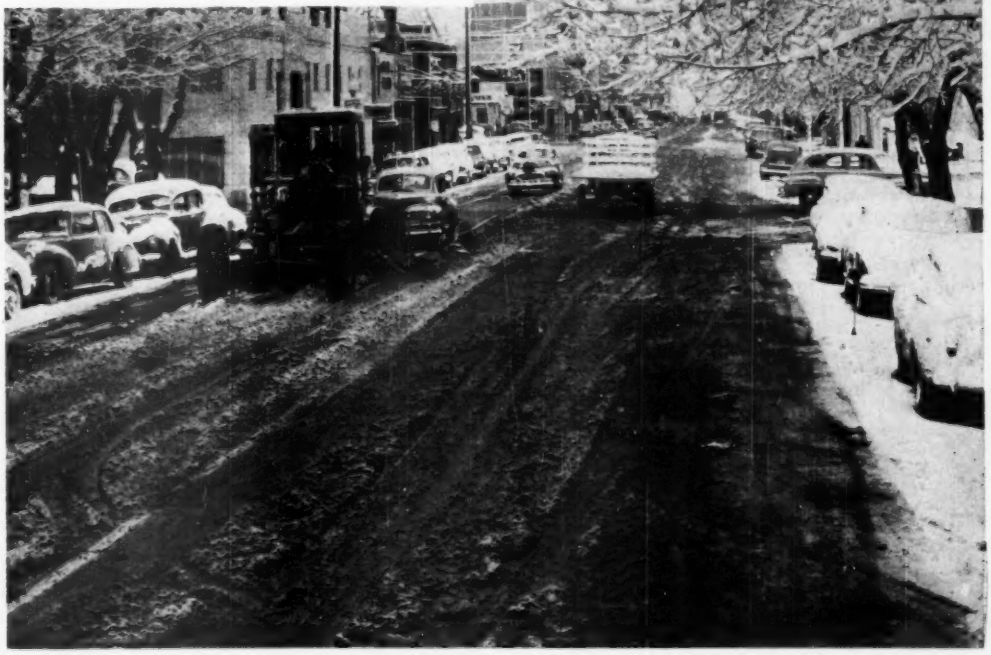
DURING January and February of 1949, Reno experienced the worst snow storms in recent years and record cold for this period. Normally we expect about 9 inches of snow in January and 6 in February. Instead we had 15 in the first month and 9 in the second. Temperatures dropped to 16° F in January and 5° F. in February.

Fortunately the city had purchased a new No. 12 diesel Caterpillar motor grader before the storms hit. This equipment, augmented by our 1936 Caterpillar motor patrol, enabled us to keep the business section clear at all times.

The snow was windrowed into the center of the street, removed by skip loaders and trucks, and dumped in the Truckee River which flows through the center of the city.

Our street crew of 30 men was able, by working two eight-hour shifts, to do a remarkable job. The residential districts were well handled also, with the snow windrowed into the center of the streets, and pedestrian lanes cut through at intersections. This snow was not removed as it was in the business district, but was allowed to melt and waste through the storm-drain system.

Nearly 80 tons of rock salt were spread on pedestrian ways and intersections, in addition to 455 tons of sand.



1. Superintendent Fred Miller, left, and one of his pipeline foremen show the consistency of the moist cement used in the jointing work.

Fifteen Years' Experience With Cement Pipeline Joints

El Paso, Texas has used cement joints with almost universal success since 1934

OF ALL the joints used in building water-main extensions of cast iron pipe, those made of neat portland cement are undoubtedly the least used. But popular or not from a national standpoint, El Paso likes them, has been using them for 15 years, and will continue to use them in the future, if Superintendent of Distribution Fred W. Miller has anything to say about it.

He finds them easy to make and requiring no great background of knowledge and experience. His crews can make them quickly. On one project a workman required only six minutes to make a joint for a 14-inch pipe. And the joints seem trouble-proof. Experience over the past 15 years has been so good that today Superintendent Miller's crews simply lay the pipe, make the joints, cover them, and forget about them. A certain amount of leakage takes place during the first few days of their use, but after that, he reports, the joints become tight and leakproof for all practical purposes.

Mr. Miller likes to relate the record of ruggedness that the cement joints made in El Paso when his crews laid a large main under a railroad track. This particular line is 20 inches in diameter. The track crossing has 42 sets of track. The line lies 4 feet below the ties. When the line was laid, the railroad company specified that at least 60 feet of line would have to be laid each day and covered so that the lights would not be necessary during the night. A valve was set on each end of the 1,100-foot line. After the line was completed, an official test was made for the railroad representatives. At the start of the test, the leakage under 80 pounds' pressure was 3 gallons per minute. At the end of 24

2. A Barber-Greene excavator opens a ditch for a main.

3. The pipe is eased gently into the new ditch.

hours this amount had reduced to 1½ gallons per minute, and at the end of 48 hours, the leakage was less than a quart per minute. Since then, and this line has been in more than 10 years, the leakage has been too small to measure.

Cement Used Throughout the System

Some water-works men using this type of joint feel that a lead joint should be used every 100 feet or at some similar interval to allow for expansion and give a certain amount of flexibility to the line. Superintendent Miller does not subscribe to this theory at all. Lines that his crews lay use cement throughout. The depth in the ground, plus the uniformity of the water temperature, makes the use of expansion joints relatively unimportant, he feels.

The space required for the bell hole is the same as that required for lead or any other conventional jointing material. The only difference is that the joint must have sufficient room for yarning.

The El Paso crews generally use one coil of braided jute to make the joint. This is used mainly to space the spigot end of the pipe evenly in the bell. Some water-works men feel that the use of the jute is not necessary, but Superintendent Miller feels that it has advantages. The rigidity of the pipeline, he believes, is not so great. Also, should it become necessary to salvage or move a line, the cement is more difficult to remove, if the jute is not used.

The procedure of making the joint with portland cement is simple. Regular portland cement is used, without sand or gravel. Generally about 25 pounds of cement are mixed at a time, with water sprinkled lightly on it and mixed thoroughly. Just enough water is used to dampen the cement for it to form in the hand like moist earth. The cement must have a "zero slump" if any is measured.

Jointing Procedure

The caulker takes an old cement bag or large piece of canvas, and makes a carrier for each joint. This is placed under the joint so that spilled material will be saved. He generally uses enough to make about two joints.

The caulker starts at the bottom, filling with one hand and tamping with the other until he has completed a round of the joint. Then he takes a 3-pound hammer and caulks it up tight. He repeats this operation until the joint is full. There is no need to heap any material on the outside of the joint. In 24 hours the joint will stand any pressure required of it in the El Paso system.

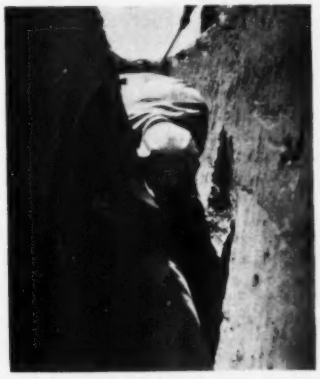
The work, as Superintendent Miller states, has been consistently successful. Joints made with the cement have become tight and have stayed tight. In his 15 years of work with the cement he has had only four cement joints fail, and they were all made by the same man, who made the mistake of thinking that he could do a sufficiently thorough job by caulking the cement in with his fingers.

The Water Department lays all mains with its own crews. On one record day this year, a seven-man crew laid 1,150 feet of 6-inch pipe. On another day it laid 900 feet of 6-inch pipe in rough, rocky ground. During this year the department will lay 15 miles of cement-lined cast-iron pipe to serve new areas being built around El Paso.

The Water Department is operated under the general supervision of E. J. Umbenhauer, General Superintendent, who reports directly to the Mayor and City Council. The department also has a five-man citizens' advisory board that serves without pay and passes on the operations of the department. Although the board is without authority, the city council has always accepted and approved its recommendations.

7. Backfilling is completed in a hurry with this Hough loader.

4. The pipe jointer then secures the burlap containing the cement to the joint in back of the bell.



5. From here it is a matter of caulking in the jute and the cement firmly until the annular space is full.

6. With the joint made, all that remains is to "cover and forget it." It has a good record of water tightness.

City Engineer John Maring, Kansas City, Mo., helped pave the way toward making each event move smoothly.

American Public Works Congress Sets New Meeting Pattern

Annual meeting, held in Kansas City's Municipal Auditorium, brings exhibitors and sessions under one roof, supplies space indoors for heavy-duty cranes, trucks, tractors, and snow-fighting equipment

THE largest and probably the most smoothly run annual congress of the American Public Works Association took place September 18-21 in Kansas City, Mo. Attendance records showed 737, representing 39 states, 5 Canadian provinces, Hawaii, and Palestine.

Honors for the longest distance traveled to the meeting were divided between Henry K. Young, Principal Civil Engineer from the City of Honolulu, and John L. A. Watson, City Engineer of Haifa, Israel. Mr. Watson, incidentally, has used both Jews and Arabs on his public-works crews for several years, and has watched them work in complete harmony. He has retained his post as City Engineer through the change in government, and has operated his mixed crews peaceably during the entire period.

Delegates who traveled the farthest were Henry K. Young, Principal Civil Engineer, Honolulu, left; and John L. A. Watson, City Engineer, Haifa, Israel.

Disaster Relief

One of the most vital sessions at the Congress concerned disaster relief. Chairman of this meeting was W. A. Bowes, Commissioner of Public Works at Portland, Ore. His city, two years ago, had to receive and shelter its neighboring war-born city of Vanport, which was completely destroyed by flood, when what was believed to be one of the strongest portions of the Columbia River levee works suddenly gave way. The panel on disaster relief included Burton Washburn, Secretary of the California State Disaster Council; E. L. Knebes, Assistant City Engineer of Milwaukee, Wis., and City Manager W. O. Jones of Fort Worth, Texas. City Manager Jones told the story of this spring's flood that struck his city once, and within a week threatened again. He told how he realized, on the morning of the flood, that just one of his problems was a quarter of a million people on his hands, and no means of supplying them with potable water. Organization loomed high as an essential factor for disaster relief. The organization must establish someone in authority with the power to act. Inventories of supplies and equipment must be kept available with instructions for use. Handling and controlling sightseers was another consideration. In the Vanport disaster, Commissioner Bowes related that curious hordes had so clogged streets and roads that at times they almost blocked disaster relief. Inaccurate radio reports also tended to create confusion. Speaking from the floor, E. L. Filby, of Black and Veatch, consulting engineers of Kansas City, put in a plea for as much technical information about a disaster as can be gathered at the time. He related how, at the scene of certain Florida hurricanes, observers had been placed at strategic street intersections to photograph conditions down each street and record depth of floodwater.

Snow Removal

Significant discussions also were held on the subject of street cleaning and snow removal. This section, of which Commissioner Robert P. Curley, of Boston, Mass., was chairman, had on its panel Marvin L. Davis, Director of Public Service at Akron, Ohio, who

told how the use of the phosphate compound, Banox, had been instrumental in blocking corrosion that might be induced by salt in snow-removal work. Lester C. Hollis, Superintendent of Public Works at Needham, Mass., outlined equipment developments. Lloyd M. Johnson, Chicago Commissioner of Streets and Electricity, spoke on how to get public cooperation, and John S. Flockhart, Supervision Engineer of the Newark, N. J., Bureau of Sanitation, outlined snow-removal work by the use of heated pavements.

Refuse Disposal

Also well attended was the discussion on refuse collection and disposal, presided over by Warren A. Coolidge, Director of Public Works, Nashville, Tenn. Leading the panel was Ralph C. Taylor, Cincinnati Superintendent of Waste Collection, who analyzed the use of kitchen garbage grinders. In his opinion the use of the grinders will be regulated in the future until cities can provide adequate disposal facilities. He mentioned 19 municipalities that have prohibited the use of the grinders because they feared their effect on sewerage systems. These included New York and Larchmont, N. Y.; Miami, Fla.; Knoxville, Tenn.; Youngstown, Ohio; York, Reading, Philadelphia, and Lower Merion Township, Pa.; Glen Ellyn, Ill.; Linten, Ind.; Derry, N. H.; Toronto, Canada; Newport News, Va.; Fond du Lac, Wis.; Orange and Trenton, N. J.; Marquette, Mich., and Cheyenne, Wyo.

Most dramatic of the presentations was the discussion of the Verdier process of refuse fermentation, not used in the United States, used somewhat in Europe, and now under consideration for use in Miami, Fla. This is essentially a composting system under scientific control that turns all refuse, except metals and glass, into a useful humus.

Miami's Director of Public Service, Ray Williams, made the presentation, basing his talk on a first-hand inspection of the installation at Cannes, France. The Miami proposal is that an independent organization will set up the composting equipment and sell the resulting humus. The city would deliver its refuse to this organization, paying it for accepting the refuse at a rate equal or less than alternate methods of disposal, with an amortization plan for acquiring it in 15 or more years, if successful.

The practical side of making the process of refuse disposal financially solvent came under study by Henry W. Taylor, consultant engineer of New York City. He outlined seven methods of financing disposal units. These are:

Retiring president W. A. Xanten, Superintendent of Sanitation, Washington, D. C., left, offers congratulations to incoming president W. O. Jones, Fort Worth, Texas, City Manager, right.

- A heterogeneous combination of revenue, surplus and budget appropriations.
- General-obligation bonds supported out of the general fund.
- Revenue bonds—allowed by eight states. This method puts the service on a self-supporting basis through service charges.
- Special legislation—creating refuse-disposal districts empowered to construct and operate facilities. Nassau County, N. Y., is a notable example.
- Refuse-disposal authorities—New Jersey is the chief example. Agencies may be established by the cities and may issue their own bonds, generally of the revenue type.
- Contract or contractor financing—the former possible in a limited number of cases where municipalities have the power to contract for refuse-disposal service and the power to raise revenue to satisfy these contracts, but have no capital-expenditure margin.
- Federal and state aid combined with local funds.

The subject of legally imposed depreciation on refuse-disposal facilities also was discussed, and the opinion was expressed that stipulated "periods of usefulness" were unjustifiably drastic.

Election of Officers

W. O. Jones, City Manager of Fort Worth, Texas, was elected president of the Association, succeeding W. A. Xanten, Superintendent of Sanitation, Washington, D. C. Two of the four vice-presidents of the Association were elected this year. W. S. Foster, engineering editor of THE AMERICAN CITY, was re-elected vice-president of the eastern area. Carl Froerer, City Manager of Alameda, Calif., became western vice-president. George Thompson, City Engineer at Detroit, Mich., was named director for a one-year term. E. J. Cleary, Executive Director and Chief Engineer of the Ohio River Valley Water Sanitation Commission, Cincinnati, Ohio, and Sol Ellenson, Director of Public Works, Newport News, Va., were elected to two-year terms on the Board. Allan H. Rogers, Superintendent of Public Works, Garden City, N. Y., was named treasurer of the Association.

Small Community Has Its Own Country Club

LESUEUR, Minn., a community with a population of 2,800, set in the lush verdure of the Minnesota "Green Valley," dedicated its unusual golf club on June 2 as the result of intensive work by a civic committee and the Minnesota Valley Canning Company, the community's biggest industry.

Everyone in LeSueur is eligible for membership regardless of working status. The fireman, druggist, industrialist, or housewife—all belong. The low family membership rates are only $30 per year. Because of its close proximity to town, practically all the worker has to do when he is through for the day, is stroll down the road a piece. Clothes are selected for comfort rather than fashion.

Focal point for activity in the club is the clubhouse itself, conceived of by the builders as a center of community social life. Already classes in golf have been formed for persons of all ages. Youngsters and grandmothers are helping to make the game the town's favorite leisure-time activity.

Putting the Horse Before the Cart . . .

Planning before zoning — New London's land-use map a practical demonstration

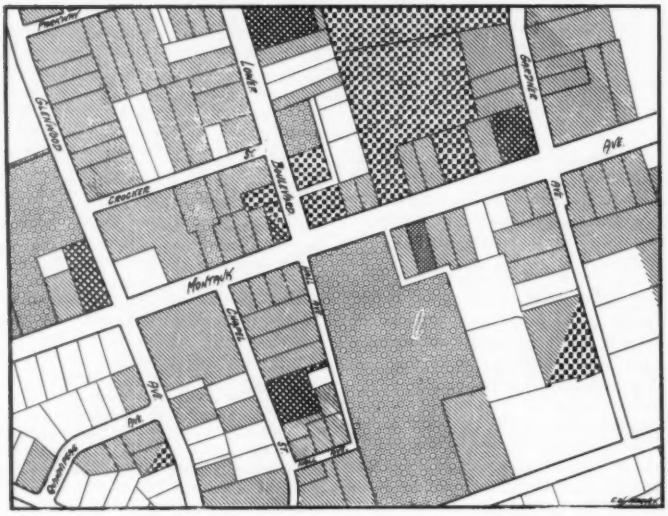
By **FRANK A. BATSTONE**
Planning Engineer
Connecticut Development Commission
and
ALMA F. ESHENFELDER, *President*
Planning Board of New London, Conn.

IN CONNECTICUT municipalities the early tendency was to zone with little forethought—to "freeze" things as they were. It was a pitiable attempt to "preserve" the community without regard to the inevitably changing scene. For the moment these unrealistic local regulations served a purpose. Mobility of people and goods has altered this precarious *status quo* type of zoning. The trend toward decentralization of residences, the need for business to serve the residents, and the desire of industry to escape congestion have brought municipal officials and unrealistic zoning face to face with problems that can be solved only by rezoning based upon planning.

Zoning enabling legislation for Connecticut declares "such regulations (zoning) shall be made in accordance with a comprehensive plan." Of the 205 municipalities (towns, cities, or boroughs) in the state, 93 have zoning. Only 51 municipalities have adopted planning legislation, and of these 51 only a handful have what might be labeled "a plan"! Even if all of the 51 municipalities had "a plan," some 42 would still be operating "outside the law."

It is generally understood that land-use studies and plans, existing and proposed, would be sufficient evidence to satisfy the courts that the zoning had been "in accordance with a . . . *plan*." To what degree current attempts to rezone are recognizing the legal and logical need for land use studies is a question. Generally the rezoning proc-

Aerial view of a section of New London, Conn. . . .



. . . and (left)—the land-use map for the section shown in the photo. The legend for the map is below.

LEGEND

Single family residence
Two family residence
Multi-family residence (apartments)
Light business
Heavy business (automotive drive-ins, theaters, department stores, wholesaling, etc.)
Light industry
Heavy industry
Agriculture (intensive use or under cultivation)
Public and semi-public use (public buildings, parks, playgrounds, churches, etc.)
Forests, reservations, etc.
Vacant land
Mixed use (sample, use appropriate colors)

ess falls into the following four categories:

1. A continuation of the hit-or-miss or static type of zoning, lacking any semblance of a plan;
2. Feeble plans with a homemade flavor—often ill-advised and without benefit of any technical interpretation or guidance;
3. A la carte planning and zoning, done solely by a technical consultant without participation of the local officials or citizens—often subsequently falling into untutored and unreceptive hands;
4. Public participation, particularly in the planning stages, by the planning and zoning officials and citizen planning advisory committees working with a planning technician, thus assuring success through sounder judgment and with greater understanding.

Advantages of Citizen Participation

There are numerous advantages to the latter type of action—the collaboration of local talent and abilities with those of the technician. In the first place, city and town officials often fallaciously believe planning to be "a frill" and are reluctant to appropriate money for it. The citizen-participation approach, working with the municipal engineering talent which may be available, can cut costs since the citizens do much of the basic work themselves. There is a lot of leg work and basic fact-finding involved in a land-use study. Much of it is time-consuming and therefore dollar-consuming. Where citizen planning advisory committees have been formed and the municipal officials are aware of the logic of *planning before zoning or rezoning*, it has been demonstrated that genuinely wholehearted teamwork can bring results. Not only has there been a dollar saving, but the *self-education through participation* of the citizens involved has been of inestimable value in the ultimate adoption of the proposed local regulations. This citizen-participation technique has worked successfully in small communities. New London, however, is one of Connecticut's larger municipalities which is working out a "self-help" program that is well worth a look-see.

Although self-education through participation is considered admirable, it is not usually resorted to by members of a board if funds are adequate for a professional job. Funds were not adequate for the New London Planning Board to hire a professional technician to prepare an existing land-use map of New London's 6½ square miles. "Self-education" in the case of New London's planning group was the only alternative, in order to get this particular job under way.

Because the problems requiring the attention of the Planning Board for study and ultimate recommendation to the City Council were building like thunderheads, the members of the Planning Board were determined to have a visual record of just how the land is currently used within the city's boundaries.

This map of existing land uses—now being prepared by the members of the board under the supervision of the City Engineer, who by charter is the Planning Engineer—will be an important contribution to the city's map files. As in every other community, New London has any number of maps and information pertaining to them, but there is nothing to show how *all* parcels of land are *actually* used.

Besides individual lot uses, the new map will include all existing roads, streets, highways, railroads, and principal lands in public and semi-public ownership, such as schools, cemeteries, churches, parks, public buildings of all kinds, ponds, lakes, and waterways.

Upon completion the map will be entirely colored except for the vacant lands, which will remain uncolored. It will indicate the pattern of growth which has already taken place within the city's boundaries. Such a map is an invaluable and necessary tool in all future land use planning for New London—as it would be for any municipality embarking on a planning, redevelopment, zoning, or rezoning job. Any planning board, as it goes on with its work and duties, would be working in the dark without this basic information.

Procedure for the Project

The procedure for this project is outlined by the Board as follows:

1. Plot all streets and delineate all lot lines on a tracing of the entire city to scale of 200 feet to the inch.

This drafting is done, under the supervision of the City Engineer, by the city draftsman in his "spare time." Assisting the city draftsman in this preparatory work is a group from the New London Junior College drafting class, which will do this volunteer work as a project for the term.

2. Divide the base map in sections which will be colored in by volunteers interested in the project.

The color legend is one prepared by the Connecticut Development Commission which has been suggested in order that each land-use map in each community within the state will have uniform color combinations.

3. Reassemble the sections and have the map printed in color for use of city departments and for sale to local businessmen.

Many potential purchasers have already expressed an interest.

4. Analyze the existing uses according to the findings of the study in order to be prepared for future recommendations.
5. Devise a method to keep the map up-to-date at all times by having various department heads report official changes within the city.

After the Planning Board's program to prepare the land-use map had been discussed with the City Council, several sections of the city were mapped in advance. This was done before the completion of the entire base map of the city in order to illustrate graphically the existing uses in certain areas where zone variances had been requested. The City Council, which is the local zoning authority, found the completed sections of value to them because it gave them, at a glance, the information they heretofore had had to get for themselves by personally investigating the areas in question.

Map Demonstrates Its Value

Because of the Planning Board's responsibilities to New London, the members of the Board were unanimous in their opinion that knowledge of existing uses must be made available in order to guide inevitable changes in residential developments, both private and public; school locations; industrial development, both light and heavy; commercial and business centers; highway uses—street lay-outs, access, traffic safety; parking, street and offstreet; street numbering; zoning and zone variances; parks and playgrounds. Further, the Board wanted information which would aid in estimating population; school enrollment and trends; sewer lines; water lines; recreation needs; public-health requirements, including hospital and clinics; street maintenance; noise and smoke nuisance; public-safety requirements—fire and police protection; intensity of land use; parking-lot locations, and equalization of ward lines.

It seems reasonable to believe that much of the information available on this map of existing land uses will be of inestimable value to other departments of the city government. It is, therefore, felt by members of the Board that such a study, when completed, will not only be a project for "self-education" but will be a major contribution to the community.

Putting the cart before the horse has been almost traditional in municipal planning and zoning matters. Therefore it is sometimes difficult to teach an old horse new tricks and put *planning* where it belongs—before *zoning* or *rezoning*. The effort to make the switch is rewarding, as the New London Planning Board and municipal officials are discovering. Every community, whether in Connecticut or California, can activate public interest and participation in the planning and zoning problem. Not until such action is taken are the communities likely to find almost everyone pulling in the right direction.

How Oklahoma City Stopped Sewer Odor Nuisance

Chlorinated hydrocarbon checks summer odor nuisance from a trunk sewer, with such success that it will be used extensively throughout the system

WHEN you talk about personal cleanliness, perhaps "your best friends won't tell you." But if you turn to odors coming out of a sewer and you are the responsible official in charge of them, your friends won't hesitate a minute. Oklahoma City's Superintendent of Water and Sewerage, M. B. Cunningham, will back this latter statement, and is thankful that he has found a way to keep those complaints down.

The problem centered around an overloaded storm and sanitary sewer whose rehabilitation is included in the present $6,000,000 improvement program that the city now has under way. This sewer is laid on a flat grade, and each summer Superintendent Cunningham and his staff could count on trouble. The sewer passes through the downtown district, where businessmen's comments have been particularly pointed. Strong hydrogen sulphide odors, they explain, can scarcely be used to attract customers.

Use of Cloroben

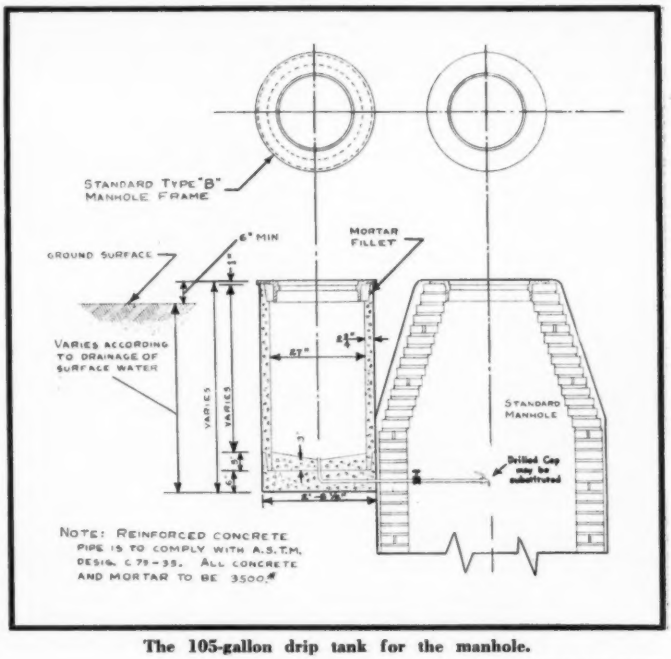
Superintendent Cunningham, reviewing literature on the subject, learned that Los Angeles faced this same sort of problem and has solved it with the use of a chlorinated hydrocarbon, known as Cloroben. So during the 1947 joint conference of the American Water Works Association and the Federation of Sewage Works Associations in San Francisco, he took time off long enough to visit Los Angeles and see at first hand what had happened. He liked the fact that the Cloroben was an easily handled, stable liquid, safe from flame danger and readily mixed with water. He was pleased with the results he saw, and came away convinced that Oklahoma City should try it also.

His first test was with a 50-gallon drum. He diluted this in a ratio of one gallon to 100 gallons of water, and for a test tried spraying a gallon of this mix in a particularly troublesome catch basin. The odor simply ceased to exist.

Next, he decided to attack that troublesome storm and sanitary sewer. Periods existed when this sewer carried packinghouse wastes with a BOD count as high as 1,800 ppm. A break in the sewer by-passed the sewage directly to the river and created a thick, foul layer of scum. He established three dosing points on the sewer. For one point at the downstream end, he prepared a 250-gallon mixture with 10% Cloroben and applied this to the sewage over a four-hour period. The flow at that time was approximately 4 mgd, half of which was the strong packinghouse waste. At the second dosing point, he used two 55-gallon drums and filled them with the same concentration of Cloroben. This was applied over a 24-hour period, and was mixed with packinghouse waste flowing at the rate of 2 mgd. A third station also was established, and 150 gallons in mixture was applied over a 24-hour period. This used Mr. Cunningham's entire 50-gallon supply.

All this took place in the month of August 1947. His work was faithfully chronicled in the Oklahoma City papers and followed carefully by City Manager William Gill and Mayor Allen Street. Almost dramatically, the odors disappeared. The chlorinated hydrocarbons carried the day over the rotten-egg odor of the sulphides in a way that pleased the entire City Council.

These good results prompted him to give the Cloroben even more rigorous tests. The river, where the by-passed sewage was making its offensive difficulties, became his next target. By


STANDARD TYPE "B" MANHOLE FRAME
GROUND SURFACE
6" MIN
MORTAR FILLET
VARIES ACCORDING TO DRAINAGE OF SURFACE WATER
VARIES
VARIES
67"
STANDARD MANHOLE
Drilled Cap may be substituted
NOTE: REINFORCED CONCRETE PIPE IS TO COMPLY WITH A.S.T.M. DESIG. C 76-35. ALL CONCRETE AND MORTAR TO BE 3500#

The 105-gallon drip tank for the manhole.

using a portable sprayer, he applied Cloroben to the scum surface at the rate of 10 gallons per hour over a 3-hour period. This action cut away the scum and began to give the stream an opportunity of looking again like its former self.

This action has convinced Superintendent Cunningham and his staff that this hydrocarbon can control the action of hydrogen sulphide enough to make the use of concrete sewers safe. So the new sewer program contemplates its use throughout the system. Moreover, there are now 25 dosing stations built, to make the application of Cloroben a regular practice. The odor-control program is being further reinforced by action of the street-cleaning crews. For the past year they have been adding two gallons of Cloroben to each 1,500 gallons of water in the tanks of street flushers. Thus, the water from the flusher as it goes to the catch basins will remain in the traps and correct septic conditions.

The hydrocarbon has had other public-relations activities also. On one occasion, the manager of a laundry establishment using washing machines on a rental basis asked for help to keep odors down in the sewer traps serving the machines. An application of Cloroben did the job for him. On another occasion, a grain-elevator operator found himself in trouble with rotting grain that had worked under one of the floors and was causing an offensive odor. Once again, the same treatment brought relief.

As far as sewer odors are concerned, Superintendent Cunningham and his staff conclude that with the hydrocarbon and the sewer improvements now going on, his best friends won't have to tell him, because there will be nothing of an offensive nature for his friends to tell.

Heigho, Jeeps Away!

THE universal yearning throughout the human race for extra-curricular occupation accounts for most of the non-productive—as far as personal bread and butter are concerned—activities. The desire exists in nearly every one, and ranges from innocuous hobbies to world-saving. Between the extremes are volunteer firemen, members of secret societies, and now—Jeep Vigilantes. Though present membership appears to be confined to the Jeep Posse of Bountiful City, Utah (population 3,357), and the Official Jeep Posse of its larger neighbor, Salt Lake City, the local membership card says "Member of International Association of Jeep Posses." So who knows how far the movement may spread?

It all started at a local meeting of the Lion's Club. Merk Christensen thought that jeeps possessed untapped civilian possibilities. He discussed his idea with the jeep dealer and a service-station owner. The three or four other men became charter members of the "Official Bountiful City Jeep Posse." There are now 32 members and 25 jeeps. The jeeps are red with cream insignia. Members wear helmets, jumpers, parkas, flight jackets, to suit the weather. They wear no badges. This is a volunteer service.

Up to now this service—modified by the vast, rugged, open spaces of Utah—has been comparable to that of a volunteer rescue squad in the east: fighting brush fires, going on mercy missions in heavy snows, searching for lost hunters.

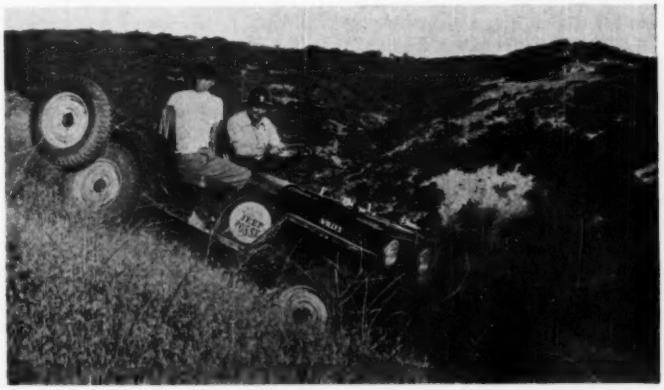
"You will, of course, be interested in our more recent activities," wrote Secretary-Treasurer Arthur T. Jolliffe recently.

One of the most exciting recent ventures of our Posse was early last August, when two convicts escaped from the Utah State Penitentiary. These men entered and robbed several stores in Bountiful, securing a truck from a garage, and firearms and ammunition from a hardware store. They were surprised in the act of loading up with food from a grocery store by Jack DeLand, our deputy marshal. They rushed to their stolen truck and roared off northward, pursued by the marshal. In trying to make a sharp turn, the bandits overturned and wrecked the truck. They managed to escape to the high brush-covered Wasach mountains near by. It was then that our Jeep Posse was deputized and called into action, along with Sheriff's posses, special deputies, prison guards, and the State Highway Patrol. The Posse was on continuous duty for 48 hours or more, searching the mountains and canyons for the fugitives. The character of the country is such that the men finally made good their escape, and have not as yet been apprehended.

Although our operations did not meet with success, our Posse learned a good many valuable lessons by their cooperation with the law-enforcement officers. It proved to the state and the nation (for the search was covered by the Associated Press) that such groups of public-spirited citizens as our Posse can be invaluable as aids to the regular peace officers. Not the least of our Posse's services on this occasion was the feeling of security it gave to farm families and isolated households in the foothills who naturally had reason to be apprehensive with a couple of well-armed and desperate characters at large.

We have just completed a hook-up with the Civil Air Patrol, in order to furnish that organization with a ground force in this locality. We have some top-notch radio men in our unit, and the C.A.P. has furnished designated jeeps with radios. Bountiful City has requested that certain of our members accept formal deputization as an aid to the regular police force in our town. Every member of our Posse seems determined to live up to the motto of the organization—*Auxilium Rotis Ferimus*—"We Bring Help on Wheels,"—although some of the more irrepressible and younger members insist that it means "We are hell-on-wheels!"

That is another thing which we pride ourselves on . . . our Posse appeals to all its members, whatever their age or inclinations. It affords constant opportunities to be of civic service; promotes plenty of fun and recreation; and, in the case of the younger men particularly, satisfies their inherent taste for action and adventure.



A jeep of the Bountiful City Posse out where forest fires begin.

National Board's

New Fire Alarm Regulations Cut Costs

By F. B. PHILBRICK
President and General Manager
The Gamewell Company
Newton Upper Falls, Mass.

THE STANDARDS of the National Board of Fire Underwriters for the installation, maintenance, and use of municipal fire-alarm systems have been revised to take advantage of new materials and techniques that lower costs of systems and equipment. These Standards are as recommended by the Signaling Apparatus Committee of the National Fire Protection Association.

The question of whether the present basic type of fire-alarm system may not be superseded by some other form that would be less costly was reviewed by the Committee with the conclusion that the present type of system is the most reliable and practical arrangement.

The Committee recognized, however, that an effort should be made to reduce the cost of fire-alarm systems without sacrificing reliability, in order to encourage the installation of new systems and expansion of present systems. The largest cost of alarm systems is in circuit construction, of which there are two basic types: alarm circuits for connections to fire stations, and box circuits for connections to street and master boxes.

For many years, the Standards have limited the area covered by one box circuit to that included by 30 properly spaced boxes if the circuit was entirely underground, or if the boxes and central office equipment were designed to receive alarms through the ground in case of a broken circuit, and otherwise to that covered by a maximum of 20 properly spaced boxes. Note that the Standards did not limit the actual number of boxes per circuit, but rather the *area* which would be covered by the correct number of boxes. A box circuit was "overloaded" if it actually included fewer than the prescribed number of boxes, or if it covered an area larger than should be covered by the correct number of boxes. On the other hand, a circuit could include more than the prescribed number of boxes without being "overloaded" if it did not exceed in area that which would be covered by the correct number of boxes for one circuit located as required. The idea was to limit the area which would be left without protection in case the circuit was put out of service.

For more than twenty years, fire-alarm boxes and central-office equipment have been available which are designed to transmit the signal, in case of a break in the circuit, through the ground and over either side of the circuit which may be left intact to the central office. In order for an alarm to be lost with this type of system, the circuit would have to be broken on each side of a box which might be operated.

The Signaling Committee decided that the service record on this type of equipment is so satisfactory that it was justified in recommending a larger area and number of boxes to be included in one circuit of this type and now allows *double* the number of boxes and correspondingly double the area per circuit where these features are included. This saves not only the box circuits themselves, but central-office switchboards, battery requirements, and savings all down the line.

The old rules recognized two general types of systems: Class A systems in which operators were required to check the receipt of alarms, however transmitted, and to re-transmit them to the fire stations; Class B in which box alarms were re-transmitted *automatically* to fire stations. In general, Class A systems required two operators continuously on duty, whereas Class B systems required only one. The difference in annual cost of operation was substantial. Assuming a yearly salary of $3,500 per operator, one additional man per shift of eight hours requires a total of four extra men, allowing for vacations and relief, resulting in a cost of at least $14,000 per year.

Automatic Repeating Facilities

The Committee questioned this expense. Automatic repeating facilities are now available to handle any reasonable number of box circuits and at relatively high speeds. The cost of such equipment amortized over a reasonble period of years is far less than that of one operator per shift.

The new regulations designated systems requiring two operators as Type A (Manual) and others as Type B (Automatic). It was found that the terms *Class A* and *Class B* led to a belief by many city officials and the public that Class B systems were second-grade or inferior in some way and it is hoped that the new terminology will eliminate this misunderstanding.

Experience has proved that wires in cables, either underground or overhead on messenger, are more reliable than open aerial wires installed on crossarms or brackets on poles. The regulations have properly required a high standard for types and arrangements of wires in cables; but the Committee concluded that some of these requirements could be relaxed with the ultimate objective of encouraging more circuit construction in cable and over-all greater reliability of the system. One of these requirements which has been eliminated is that the respective sides of each circuit should be run in separate cables and by separate routes. This arrangement resulted in considerably greater cost than if both sides of the circuit were included in the same cable. The new rules also eliminate some of the restrictions on the use of "parkway" cable, which is more reliable than open aerial circuits.

Fire Alarm Box Spacing

In the revised Standards of the Board, the maximum distance which it should be necessary to travel to reach a box under any condition in residential areas is one block or 500 feet. The requirements for mercantile and manufacturing districts remain at 300 feet. This should result in better box coverage and greater use in residential areas.

Another requirement included in the revised Standards is that a record be made of voice communications where a telephone operator is necessary, that is, where there are more than five fire stations. The increasing use of voice communication in fire departments for radio, telephone, and loudspeaker systems has made it essential that a record be made of such conversations or instructions in view of the possibility of error.

Delayed alarms continue to plague the fire service and remain one of the most serious causes of the increased fire loss. Prompt and accurate alarms transmitted from street boxes can do much to correct this situation. Municipal fire-alarm systems also provide means for transmission of alarms from sprinkler systems, automatic alarm systems, and other types of systems, directly to fire headquarters in the most direct and reliable manner.

Presented at the 76th Annual Conference of International Association of Fire Chiefs, New Orleans, La., September 26-29, 1949.

The sanitary closed truck is used chiefly in the large cities. Baltimore's Mayor D'Alesandro (right) inspecting a fleet of new Federal trucks carrying Gar Wood bodies.

How Maryland Handles Municipal Refuse

Health Department study finds hazardous practices, recommends corrective measures

By EDGAR G. HEYL
Senior Assistant Sanitary Engineer
Maryland Department of Health

PUBLIC-HEALTH workers have long recognized that improper handling, collecting, and disposal of refuse constitutes a hazardous condition. Nuisances also develop through rats, flies, and mosquitoes, known to be the factors in the transmission of diseases. Furthermore, where garbage is used as hog food, the chance for the spread of trichinosis is markedly increased. Since the State Board of Health is charged with control over refuse-disposal systems where their operations affect the public health and comfort, a state-wide survey of current refuse-collection and disposal practices was needed.

The survey covered the incorporated communities where such services should be provided. Since Maryland is largely urban, this survey covers 1,625,048 people, or about 75% of the total. Of the 114 questionnaires sent out, 88, or 77.1%, were returned. The cooperation of the municipal officials who responded is in a large measure responsible for the comprehensiveness of this survey.

Watertight Trucks Needed

The draining of garbage before it is placed in the can is a sound practice for it helps cut down odors, reduces corrosion of the can, and helps prevent the garbage from freezing. Only 33, or 37.5% of the communities, stated that their garbage-collection equipment was watertight, and the accuracy of some of those statements is doubtful. Hence, there is every reason to believe that in a large number of communities, much leakage of garbage juices onto the street takes place, with the production of objectionable odors and breeding places for flies. This does not seem to be generally recognized as an undesirable condition, for not more than six municipalities — the larger ones — suggest drainage, and they are the ones with watertight collection equipment.

In Prince George's County, where many of the towns haul refuse to the Bladensburg incinerator in the Washington Suburban Sanitary District, it was pointed out by the Sanitary Commission to the municipal authorities that the tonnages were unnecessarily high because of the inclusion of undrained garbage. When the public was educated in the proper handling of garbage, substantial savings were effected by these communities. Where refuse is disposed of on open dumps, excessive moisture prevents the dump from burning properly, and can even seep out into surrounding areas.

Where separation of garbage and rubbish is practiced, several problems exist. If the garbage is wrapped in paper after draining, odors are reduced, insects cannot get at the garbage, corrosion of the can is reduced, and if the garbage freezes it does not stick to the can. In addition, wrapping assists incineration and burning of the refuse on dumps.

In spite of these advantages only 12 communities, covering 52% of the state's population, suggest wrapping. Another problem that exists under separation is the condition of food cans and bottles. Almost no attempt is made to have the householder wash out the containers, with the result that the food particles left in them form breeding places for flies and attract rats when placed on rubbish dumps.

Only 28, or 31.8%, of the communities surveyed require separation of the refuse. Where hog-feeding is the method of garbage disposal, corrosive materials, disinfectants, poisons, glass, and cans are generally specifically prohibited in the garbage. Where such materials are found, the garbage is not collected. It is the usual practice to require bulky material, such as tree trunks, shrubbery, and linoleum, to be cut into short lengths for ease in handling, and it is usually recommended that large amounts of paper and cardboard be tied into bundles for the same reason.

Ashes call for very little in the way of special handling on the part of the householder, except to see that they are cold, and in a container that will not let them be blown around.

Refuse Container Requirements

The setting of specifications for containers for garbage, ashes, and rubbish, and the enforcement by city ordinance, is a recent practice. As yet only 41, or 46.5%, of the municipalities have specifications for garbage cans, and 18, or 20.8%, have specifications for rubbish containers. The only uniform provisions in the specification for garbage cans are the requirements that they be of metal and have tight-fitting lids. Many require galvanized metal, but the rest are vague. Sizes vary from 10 to 30 gallons, the 20-gallon size being the choice of five towns, the 10-gallon the choice of four, and the 15- and 30-gallon, the choice of one each.

One town has a maximum capacity limit of one bushel, and another a maximum of two bushels. The rest of those having requirements use such vague terms as "regular garbage can," "closed cans," and "covered metal container."

Specifications for rubbish containers may vary even more, from "not more than a 30-pound can," to "not more than a 100-pound can," with some communities permitting wooden and cardboard boxes. For ashes, the same receptables used for rubbish are generally allowed. Containers are furnished by the individual, except in Greenbelt,

where they are furnished and maintained by the United States Government. It is the plan of this community to take over ownership of the cans in the future, as part of its refuse-collection and disposal system.

Types of Service

There are four general types of refuse-handling services being conducted in this state. They are the municipally operated service; the contract service; the private disposal service, such as that operating in the Washington Suburban Sanitary District, and the Baltimore County Metropolitan District.

In the municipal class, 30 communities, or 33.4% of those reporting, take care of the collection of all refuse. Of that number, 23 also operate and control the disposal process, while the other seven make use of non-municipally owned disposal systems available nearby. This class of community ranges in size from Vienna, with a population of 410, to Baltimore, which has a population of 960,000. Operations are conducted by city employees under the supervision of a responsible official. All types of collection and disposal practices are found in this class. The cost of the operations is paid for by the community out of its general funds, without recourse to special taxes. Well operated, this type of service gives the most generally satisfactory results to the taxpayer.

In the contract class 16 communities, or 18.2%, contract for the collection and disposal of all refuse. Collection generally is satisfactory, but control of the sanitary disposal of the refuse is usually not possible.

Private-contract disposal is practiced in nine communities which have no municipal operations or contracts. In general, the citizens are urged to make use of the services of private haulers operating in the areas, but are not required to do so. As a result, collection is not complete and many individuals dump their refuse wherever they find space in the country. However, two of the towns in this class are able to make use of near-by incinerators. The population range in this class is from 1,000 to 6,000. Even worse off is a group of seven towns in which there is no collection service of any sort, and here the individual is saddled with the entire responsibility for refuse disposal. The population range in this group is from 75 to 1,500.

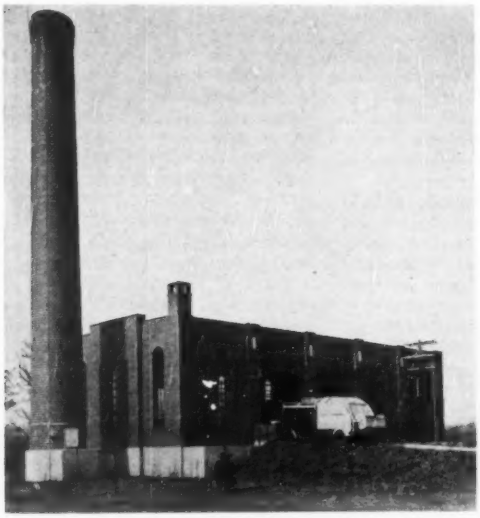
How the Special Service Works

The last class, special services, includes three municipalities, or 3.4% of those reporting, but covers 338,000 people, about 21% of the population covered in the survey. The Washington Suburban Sanitary Commission operates in Montgomery and Prince George's Counties. The Commission covers the larger part of Montgomery County and provides an efficient collection service for garbage and rubbish, which are disposed of in a fine, modern incinerator in Lyttonsville. Ashes are also collected, so that a complete and sanitary coverage for about 75,000 people in this county is assured.

In Prince George's County, the Commission operates an incinerator at Bladensburg. No collection service is provided in the area under the Commission; it is up to the communities to arrange for collection and hauling to the incinerator. The population served here is also about 75,000, but 50,000 are covered in several of the classifications previously discussed. The other special service is operated by the Baltimore County Metropolitan District, and serves about 238,000 people. Collection is by licensed contractors operating under the supervision of the District, but the disposal methods need improvement. While the collection operation is fairly satisfactory, the over-all sanitary picture cannot compare with that in the Washington Suburban Sanitary District.

Of the 30 communities using city employees to collect refuse, 17 collect garbage twice a week; two collect it three times a week and two others four times a week; while Easton finds it necessary to collect six times a week, and Ocean City seven times a week. The latter is a summer resort with an average population of 40,000 in the summertime, according to the town clerk. On the other end of the scale, five communities collect only once a week, and one collects but twice a month. In the winter, four of the municipalities cut the number of collections in half, while one western Maryland town, despite its population of 9,000, collects no garbage from November until spring! The householder has to bury, burn, or haul it to the dump himself.

Most of the communities collect ashes two or three times a week in the



The use of incinerators is growing in Maryland. This one serves the city of Frederick.

Baltmore has, in Mr. Heyl's opinion, the only real sanitary landfill in Maryland.

heating season. Rubbish is collected twice a week by 10 towns; three times a week by three; four times a week by two; and seven times a week by Ocean City. On the other end of the scale, six collect only once a week; six collect only twice a month; and two only once a month.

In the class where the community contracts for the collection of all refuse, garbage is collected twice a week in eight; once a week in seven, and twice a month in one. Ashes are collected twice a week in five communities; once a week in ten; and twice a month in one; while rubbish is collected twice a week in four; once a week in 11; and twice a month in one. It is apparent that the contractors are attempting to give good regular service, and this is borne out by the expressions of satisfaction voiced by many of the city officials visited on field trips.

In the case of the nine towns in which the householder has to make his own contract with the hauler operating in his area, garbage, ashes, and rubbish are collected once a week in five towns and twice a week in four. In most of these communities separation is not practiced, which accounts for the uniformity.

Where the three special-service districts operate, a certain amount of variation is encountered. In Prince George's County, hauling is done by contractors under agreements with the individual towns, so that a lack of uniformity is inevitable. In the area of Montgomery County, served by the Washington Suburban Sanitary Commission, garbage and rubbish are collected twice a week, and ashes once a week, and this schedule is rigidly followed. Since the Baltimore County Metropolitan District authorities contract directly with the haulers, they have set a minimum of one collection per week, and hope to increase the frequency of collection to twice a week in the future.

240 Refuse Trucks

As nearly as can be estimated, there are about 240 refuse-collection trucks in operation. Out of this total, 133 are closed units of the packer type, but since 90 are in use in Baltimore, and 14 are used by the Washington Suburban Sanitary Commission in Montgomery County, only 29 are left in the rest of the state. Open trucks, numbering 117, are used in the other areas, and included herein are two open horse-drawn carts.

Where open trucks are used, it is the general practice to build up the sides with boards to get more refuse on the truck. As a result, the cans are tossed up and down and much damage is done. Where the hydraulic-lift truck or the load-packer type of unit is in use, the container need only be lifted up to the tail gate of the truck. In this way, better care is taken of the containers. A practice adopted by the Washington Suburban Sanitary Commission in its Montgomery County operations diminishes even this chance of damage. The collectors are equipped with 5-foot squares of canvas which they spread on the ground. The contents of the refuse cans are dumped on this cloth, the corners gathered up, and the bundle carried to the load-packers. Although 7½-ounce canvas is in use, and it is required that garbage be well drained, the cloth only lasts about five days. Plans are being made to change over to 12-ounce canvas with the expectation that it will last for about two weeks. Facilities will be available for washing and drying cloths regularly. In general, it can be said that proper container handling is a situation that has not been well met, and results in short container life, or the continued use of containers no longer suited for refuse—particularly in the case of garbage.

Disposal Methods

Of the 88 communities reporting, three use a sanitary fill or a variation thereof; 11 use incineration; 17 use hog feeding; and 44 use open dumps. Of the remaining 13, seven have no collection system, while the other six did not indicate the method of disposal. Baltimore conducts the only real sanitary-fill operation for combined refuse in this state, but when the present area is used up, a change will be made to incineration owing to lack of enough suitable ground within economical hauling distance. This operation has been conducted with a reasonable degree of success, although the area around the fill has not been entirely free of odors at times. Several towns make use of a refuse-burial service conducted by a local disposal company. Refuse is dumped in a ravine, compacted with a bulldozer, and covered with 4 or 5 inches of dirt—a process which, while better than an open dump, cannot really be classed as a sanitary fill.

Incineration is gaining favor. Baltimore's 600-ton unit takes care of about half of the city's combustible refuse. Tin and glass are salvaged from the refuse prior to incineration and are sold. The Washington Suburban Sanitary Commission operates two incinerators, the one at Lyttonsville, a Monohearth type with a capacity of 150 tons per day, and the one at Bladensburg with a capacity of 70 tons per day. Tins are salvaged from the ashes by a contractor, while tins delivered separately to Bladensburg are baled and sold by a contractor.

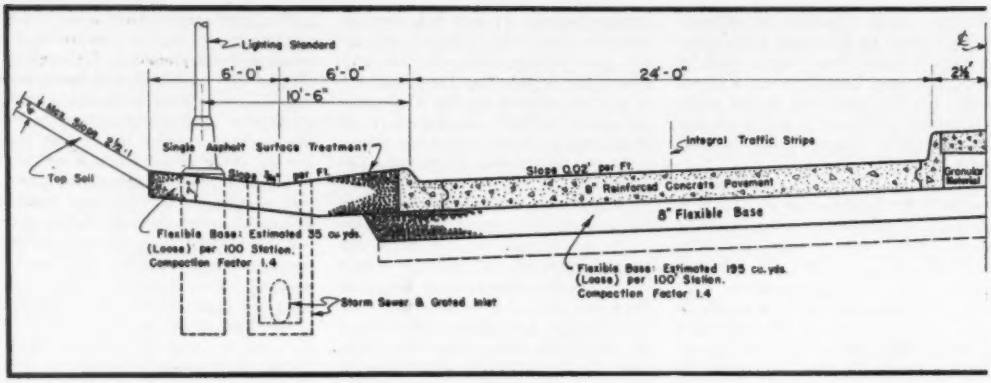
Hog feeding constitutes a fairly high percentage of the less desirable disposal methods practiced. Although the danger of transfer of trichinosis from hogs fed on infected pork scraps in the garbage is ever present, in no case is the garbage cooked before the hogs get it. None of the farms is operated in anything remotely resembling a sanitary manner. Good operation requires a farm designed for hog feeding, with suitable garbage bins, concrete feeding platforms, hog shelters, facilities for plowing under feces and excess garbage, and means of thoroughly cleaning all feeding areas. It is general practice just to dump the garbage on the ground in the area in which the hogs are penned. Instead of plowing this material under every other day and starting the feeding operation in a new area, plowing is either never done, or only once or twice a year. All the farms are in very bad shape.

Open Dumps Health Hazard

Open dumps constitute the largest single garbage-disposal method in use in the state, and are consequently the largest single health hazard as a result of their mishandling. Only one dump seen could be considered as being properly handled. This is operated by Bel Air. It is located about a mile from the city limits, and is about 200 yards from the road, and hidden from sight by shrubbery. Located upon ground owned by the city, it has been operated there for about 11 years. Dumping has been taking place over a low embankment, followed by burning, so that there is now a large flat bed of ashes, compacted by trucks backing over it. Refuse is dumped by city employees and burned immediately, the employees staying to supervise the process. The dump is practically inert, for no garbage other than that being burned could be seen. A bulldozer is also used from time to time to compact the dump. During suitable weather the dump is sprayed with DDT to kill insect life, and poisoned to kill such rats as are found. Both of these processes are carried out with the assistance of the county agent. The dump is located far enough away from any residences to prevent smoke nuisance, and no streams of water are near. With this good operation, the satisfactory aspect of disposal by dumping ends.

The rest of the open dumps in use are in very bad condition and the reasons are not hard to find. An open dump is generally the cheapest disposal method, and, as a result, little or no supervision or control is exercised once one has been started. Unsightly and unattractive, the municipal authorities avoid them and seem to know

(Continued on page 127)



Fort Worth Gets Expressway System

BY 1960 expressway arteries will extend from Fort Worth in four directions. Using them, north Texans can ignore mileage factors around the city of Fort Worth the way they do in the rest of the state. In the north-south direction, these arteries will reach for nine miles. In the east-west direction they will stretch out 10 miles and eventually join with a like development in Dallas, welding the two Texas Twin Cities together in everything except competitive spirit.

This arterial system in Fort Worth, now under construction, is being built cooperatively by the City of Fort Worth and the State of Texas. Under this arrangement, Fort Worth furnishes the right-of-way, in this case a substantial portion of the project cost, and the states does the construction.

At present a little more than two miles of the expressway system is being built in the north-south direction, and almost four miles in the east-west direction.

The new expressway draws heavily from lessons taught by past construction of this type. Traffic studies indicated that the auto and truck traffic wanted to get into Fort Worth, not to go around it, so the expressway reaches into the heart of the business district to discharge its load. Ingoing traffic is positively separated from outgoing by a 5-foot median strip. Within the densely populated portion of the city the expressway has six lanes; on the outskirts this narrows to four. There are traffic separations approximately every half mile, using grade-separation structures. The expressway will be completely lighted by 16,000-lumen General-Electric mercury-vapor lamps 30 feet high. These are placed at 100-foot intervals and staggered on each side of the throughway. Sodium-vapor lights are used at each ramp leading to a traffic separation. The light poles are located 9½ feet from the curb.

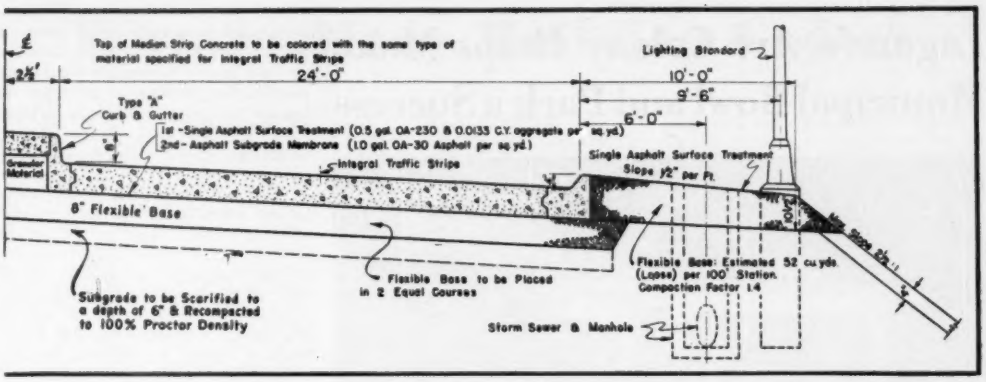
There is an interesting difference in the design of the structures carrying the local traffic over the expressway. Those that have been built in the north-south section of the project use continuous steel I-beams supported on two piers 75 feet apart with abutments 40 feet from the piers. In contrast, those that serve the east-west section of the expressway system are built around a rigid frame design with a 70-foot clear span. The choice between the two was determined on the basis of harmony of design. On the north-south expressway, many railroad crossings were encountered, and as the railroads prefer steel girder for their structures, it was decided to construct all of the grade-separation structures of continuous steel-girder design. On the east-west project the most important structures would be on five grade separations adjoining the business district, and it was decided that these structures could be made more esthetic with rigid-frame design. Since this design was to be used on these five structures, it was decided that all other expressway underpasses on the east-west project would also be of the rigid-frame type.

The expressway uses 12-foot traffic lanes. In the outer portion of the city there are two in each direction. Towards the central part of the city this number is increased to three. A 5-foot median strip separates them.

F. E. Lovett, Supervising Urban Engineer, points to the dropped inlet set away from the face of the curb thus encouraging the quick exit of storm water.

Storm-Water Inlet

The traffic lanes carry an integral curb-and-gutter design, so that a 6-inch-per-hour rain will leave no more than 1½ inches of water in the gutter. Twin curb inlets are of a recessed curb design that carries the storm water directly to a storm sewer. Each inlet is


Top of Median Strip Concrete to be colored with the same type of material specified for Integral Traffic Stripe
24'-0"
Lighting Standard
10'-0"
9'-6"
6'-0"
Type "A" Curb & Gutter
1st - Single Asphalt Surface Treatment (0.5 gal. OA-230 & 0.0133 C.Y. aggregate per sq. yd.)
2nd - Asphalt Subgrade Membrane (1.0 gal. OA-30 Asphalt per sq. yd.)
Granular Material
Integral Traffic Stripe
Single Asphalt Surface Treatment
Slope ½" per Ft.
8" Flexible Base
Flexible Base to be Placed in 2 Equal Courses
Flexible Base: Estimated 52 cu. yds. (Loose) per 100' Station. Compaction Factor 1.4
Subgrade to be Scarified to a depth of 6" & Recompacted to 100% Proctor Density
Storm Sewer & Manhole

26 inches long and 3 inches wide and is recessed from the curb face by 1 inch.

The expressway carries a 12-foot "distress shoulder" on each side for use by cars that have had trouble and have to leave the pavement. This slopes away from the pavement and drains to a valley gutter that in turn drains to the storm sewer. The distance between right-of-way lines varies from 205 to 367 feet.

Rolled Fill Requirements

The surfacing is all portland-cement concrete. This is laid on a rolled-earth fill compacted to 100% of the maximum density obtained by the Proctor test at optimum moisture. On this earth base is placed an 8-inch mixed-gravel subbase that supports the concrete directly. This gravel may have enough fine material in it so that it will have a top plastic index of 12, a lineal shrinkage of no more than 7, and a liquid limit of no more than 35. On this is a single coating of OA-230 asphalt laid at the rate of one-half gallon per square yard in order to seal the moisture in the embankment and avoid outside infiltration of water that results in undesirable "joint pumping."

The concrete itself is 9 inches thick on the expressway and 8 inches on the service streets. Expansion joints are placed every 30 feet and warping joints every 10 feet. The expansion joints consist of ¾-inch redwood boards extending to within an inch of the pavement surface. A rubberized asphalt joint-sealer, manufactured by the Servicized Products Company, supplies the top seal. A Star-Lug load transfer device is used at each expansion joint.

The pavement is reinforced with Sheffield Steel Corp. mesh. The reinforcing schedule varies with each of the three slabs between the expansion joints. In the center section the mesh is composed of No. 1 wire transversely spaced 12 inches apart. For the two end sections the longitudinal wire is changed to No. 4 spaced at the same interval. The concrete receives a cure by the use of waterproof paper.

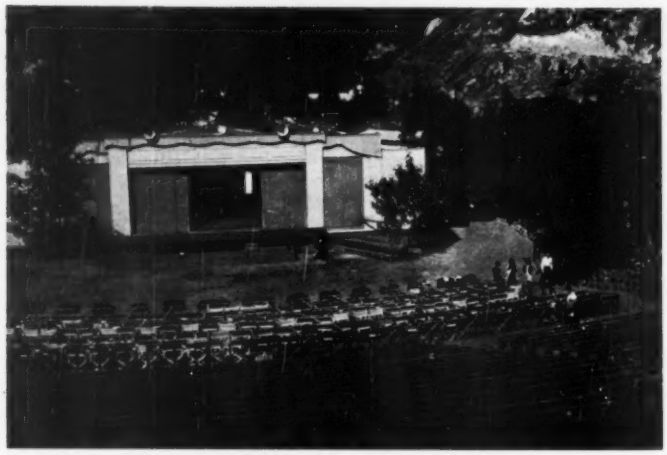
All side slopes are built to a maximum angle of 2½:1 and are planted to Bermuda grass. Some of the area was given the asphalt emulsion type of seeding, but because of excessive drought this did not work very satisfactorily. Theoretically, this was supposed to seal the surface and hold the moisture. However, breaks in the surface developed, the moisture escaped, and the seeding was ineffective.

The continuous I-beam construction used on many traffic-separation structures.

This shows how a four-lane section of the expressway will look.

As mentioned previously, all design and construction is under the supervision of E. C. Woodward, Engineer-Manager of the Fort Worth Expressway. Mr. Woodward maintains his office and engineering force in Fort Worth. Over-all design and approval of route layout is subject to the approval of the Texas Highway Department at Austin; the Bureau of Public Roads; W. O. Jones, City Manager, and C. Milo Thelin, Director of Public Works.

Laguna's Art Colony Helps Make Municipal Bowl and Park a Success



Laguna's municipally owned Irvine Bowl, nestling in Laguna Canyon, is the picturesque outdoor theater where many civic activities and festivals are held.

By JAMES STEWART

PERHAPS no other city in Southern California or in all of America, for that matter, provides such a distinguished array of art in one place as does Laguna Beach (1940 population, 4,460) during its annual Festival of Arts. This festival and its companion feature, "The Pageant of the Masters," the city-owned Irvine Bowl, and the growth of the city itself are striking tributes to community spirit.

Originally an "artists' colony," the citizens of Laguna formed the Laguna Art Association in 1918 to perpetuate art interest in the city. The birth of civic consciousness was symbolized by a general desire for a gallery in which to display the artists' work. The only available building was the Town Hall, a versatile, one-room structure used for town meetings, dances, and Sunday school. The immediate reaction of outsiders to this Town Hall art gallery brought Laguna its second civic problem—Sunday traffic.

The need for a new gallery was soon felt by both the artists and the community. After ten years of community effort, ground was broken in 1928 for the present fireproof gallery, the pride of the city.

In 1932 depression stalked the land—and art, even in Laguna, descended to a low ebb. At a meeting of the artists, the Festival of Arts was born—a depression baby that was to become world-famous.

During the next nine years, both the city and the festival grew and separately solved their own problems, but in 1941 their problems became one again. The festival had grown and needed a permanent home; the city had grown and needed a city park.

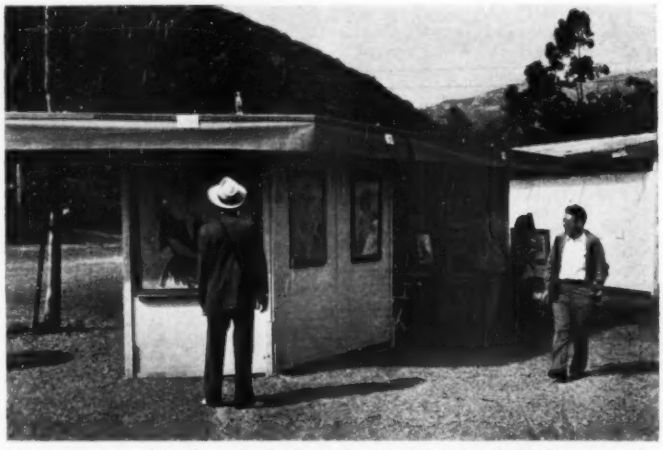
Foresight, determination and the timely assistance of a civic-minded benefactor combined to make Irvine Bowl—city park and festival home—a reality. The City Recreation Commission was largely responsible for making possible the purchase of property in Laguna Canyon for this dual purpose.

On May 14, 1941, Mayor Thomas Cummings, representing the city, signed three agreements to set the project in motion: the first with E. Walter Pyne for the purchase of one and one-half acres of canyon property; the second with the James Irvine Corporation for the purchase of 18 acres; and a third with the Festival of Arts Association, stipulating their joint efforts toward construction and maintenance of Irvine Municipal Bowl. The Festival Association included a check for $3,000 with its signature.

City Engineer J. R. Lester Boyle submitted plans for the layout, which were accepted, and City Clerk Ed Beaver was authorized to call for bids. The joint project was under way. Irvine Bowl was officially dedicated on the tenth anniversary of the Festival of Arts. Under terms of the late James Irvine's will, the Bowl property was deeded to the city and all payments were refunded to the city treasury.

As is usually the case, as soon as one problem is overcome, another rears its pesky head. The current problem is parking around the Bowl at Festival time and for all civic functions. As a solution, the city plans to buy more of the canyon property to make a permanent city-owned parking lot close to the Bowl.

This year's Festival of Arts celebrates thirty-one years of cooperation between city officials and residents of this "artists' colony" in bringing about bigger and better things for their community, Laguna Beach.



Every summer, while the colony's Festival of Arts is being held, Laguna's City Park, also situated in Laguna Canyon, is transformed into an outdoor art gallery. The canyon walls and native scenery are utilized as decorative backdrops.

Why So Many Building Codes?

By A. C. SHIRE
Shire Construction Company
Special Consultion on Housing
Headquarters, U. S. Air Forces
Washington, D. C.

IN 1921 a U. S. Senate committee poked into the housing problem and came up with a tart report attacking the wide variations in building-code requirements and blaming them for unnecessarily high construction costs.[1] Rather recently, the Joint Committee on Housing of the 80th Congress said much the same thing. A New York State Joint Legislative Committee recently reported that in 175 building codes now effective in New York State there is a complete lack of standardization of basic requirements, a wide variation as to form and content, frequently opposite treatment of identical subject matter, and that antiquated codes are a considerable contributing factor in the excessive cost of construction.[2] A similar situation exists in Canada among the 887 municipalities that have building codes there.

With half a dozen states and more than 2,200 municipalities having at different times and with different sources of information set down their individual concepts of what constitutes sufficient safeguards in construction, the result could not be otherwise than a medley of requirements involving a considerable range of provisions about the same things, sometimes even resulting in neighboring cities' permitting and forbidding the same practices.[3]

Many of these codes are old, about half of them more than 20 years old, and so written that even progressive enforcement officers cannot interpret them to permit new materials, equipment, and techniques of building to be used regardless of their soundness, worth, and effect on improving building and reducing its costs. Even most of the newer codes contain outmoded and unreasonably restrictive provisions.

Problems Created by Fringe Municipalities

Surrounding most of our large cities are a number of small municipalities, each with its own building code and enforcement officers, seemingly intent on keeping building, particularly the building of houses, local, small-scale, handicraft industries. This poses a special problem for manufacturers, shutting them out of some markets and discouraging standardization. In 1937 the author complained that "obsolete and rigid building codes require unnecessarily costly construction, hampering improvement in building techniques. They require manufacturers to change their standards for different localities, and to spend considerable sums of money to get their products accepted by local authorities."[4] In 1949 he was faced with this same situation when erecting factory-fabricated houses. Even within the same metropolitan area, each subdivision of government demanded different changes.

This situation derives out of the fundamental structure of our government. "Sovereignty resides in the States. The Federal Government has authority only to the extent granted it by the states in the Constitution. The police power, including the making and enforcement of ordinances controlling building, remains in the states and much of it has generally been delegated by them to their subdivisions of government—cities, towns, villages and counties."[5]

"A statewide code with due allowances for necessary local differences, mostly of an administrative nature, has much to commend it. While it is within the power of the states to set up state codes, and a few have done so, the vast majority have preferred to delegate the matter to the municipalities through enabling acts or charter provisions."[3] There is a strong resistance on the part of the municipalities to any abdication of this power. In the New York State Legislative investigation previously referred to, the Committee reported that there was need and desirability for a statewide construction code, but that there was a substantial difference of opinion as to how statewide minimum building-construction standards could be obtained. The majority of witnesses who testified were opposed to a state-wide mandatory code, largely because they considered it a violation of home rule. The Committee recommended that a state agency should promulgate a building-construction code containing minimum standards for all types of occupancy, and that the code so promulgated *might* be adopted by any municipality in the state by a simple inexpensive procedure.[2] Most state codes are of this nature, or do not apply to one- and two-family houses which are subject to control by the local governments.

An exception is Massachusetts, where a State Board of Standards has been given wide authority over local building codes, particularly on residential construction. There the Board of Standards must consider new materials and systems of construction, and if it is satisfied that they perform as well as materials and systems specified in local building codes, it makes state regulations covering their use as equivalents. Copies of the regulations are sent to all local building departments, and thereafter a permit must be granted to any person wishing to use such an equivalent in the approved manner in any city or town in the state.[6]

Recommended Codes

Agitation for code revision has produced a number of recommended codes prepared by responsible and highly qualified organizations. There is the National Board of Fire Underwriters' National Building Code, and also its Recommended Code for Small Municipalities (85 John St., New York 7, N. Y.) The Pacific Coast Building Officials' Conference (124 W. 4th St., Los Angeles 13, Calif.) has a Uniform Code and a Code for Small Jurisdictions. The Building Officials Conference of America (Room 1503, 51 E. 42nd St., New York 17, N. Y.) has recently brought out a condensed version of its basic code and is putting final touches on the Basic Code itself, and the Southern Building Code Congress (Brown-Marx Bldg., Birmingham 3, Ala.) has developed a Standard Building Code. In addition, a number of state leagues of municipalities and other state agencies have formulated suggested building codes. The American Standards Association (70 E. 45th St., New York 17, N. Y.) has produced 31 Standards to be used as a guide or adopted bodily in preparing new codes. There are about as many model or recommended plumbing codes as there are model building codes.[11]

So that the would-be adopter of a modern uniform code shall not become hopelessly confused, a movement to unify "uniform" codes has recently started. Representatives of most of the organizations sponsoring model codes have been meeting to examine the differences in their recommendations to see if closer agreement can be reached. However, some honest differences of opinion among experts as to both content and arrangement can be expected. Regional differences vary the accent as to differences in size and population density. More experience with the new codes will undoubtedly narrow the area of disagreement.

The lack of uniformity among basic or standard codes need not greatly hinder, however, the spread of sound practices and products. These recommended codes have in common the recognition of the value of performance

requirements. A performance requirement permits a definite result to be obtained in a variety of ways. Sound performance standards, by which conformance to performance requirements can be judged, are being developed by various organizations for the benefit of industry and the use of code-enforcement officials. Those concerned with new methods of construction will be particularly interested in the work of a committee of the American Society for Testing Materials in probing this field, in which standard test methods have been lacking, and the recent Commercial Standards for Prefabricated Homes issued by the National Bureau of Standards.

"It is desirable in revising building codes to incorporate standard code provisions which have been prepared through accepted industry processes and by qualified agencies in order to encourage as far as practical a desirable degree of regional uniformity in building code regulations." [7]

High Cost of Publishing New Codes

The actual work of revising or rewriting local codes is proceeding slowly in spite of the efforts of forward-looking organizations pushing in that direction. We must still look to the municipalities to improve their code situation. It is not easy to get a municipality to adopt a new code. In the absence of any great pressure, which rarely exists, local officials are unwilling to disturb the status quo, and particularly to go to the expense involved.

Many municipalities are required by state law to publish ordinances for public notice. The publication of lengthy and involved ordinances is costly. (The National Building Code of the National Board of Fire Underwriters, for example, consists of 63,000 words with another 32,000 words in its appendix; another code contains 328 pages.) Many of the codes prepared after several years' intensive study and application, and expressing the best thought and providing for the best of modern practices, are not available to many cities because of the excessive cost of publishing on adoption.[8]

Adoption by Reference

It is often the practice in code-writing to incorporate the standards and recommended code provisions that have been developed by technical and professional bodies by referring to them rather than repeating them word for word. This materially reduces the bulk to be published, makes codes easier to use and understand, and gives assurance to manufacturers and others whose products or practices conform to these national standards.

"There are, however, legal problems connected with this practice that are familiar to code authorities. The particular edition whose contents are to be followed frequently must be identified in order to avoid charges of delegation of legislative authority. The net effect of positive identification of a standard to which reference is made is to freeze adherence to that standard until such time as the municipal council gets around to changing the requirement. Experience has shown that this changing is done infrequently. The result is that many codes are strewn with references to dead standards. If literally followed, code provisions thus fall behind the times. If the code provisions are quietly ignored, as sometimes happens, there is due recognition of new developments, but on extremely dubious legal basis." [9]

Enabling acts permitting adoption by reference have been passed by 16 states:

Alabama	New Jersey
California	New Mexico
Idaho	North Dakota
Illinois	Oregon
Michigan	Pennsylvania
Minnesota	South Dakota
Nebraska	Utah
New Hampshire	Washington

The same general effect has been secured in Texas and Wyoming by other legislation.

In New York, all cities and first-class villages, acting under their constitutional home-rule powers, may enact local laws permitting the adoption of codes by reference. Legal approval or the practice of municipal adoption of codes by reference exists in Arizona, Kentucky, Florida, Wisconsin, Indiana, and North Carolina.

Unfavorable court decisions to such a practice have been handed down in Massachusetts, Michigan, and Kansas.

In the other 21 states the authority of municipalities to adopt private codes by reference is highly uncertain, or is dependent upon the wording of special city charters.[8]

"So code writers (in a number of states) are confronted by a rich storehouse of information organized in readily useable form and kept current by the organizations that have produced it, yet ways of using it are clouded by questions of certainty and delegation of legislative authority." [3]

Two government agencies offer some help in this dilemma. The National Bureau of Standards' excellent "Preparation and Revision of Building codes" [10] is, of course, required reading. Just recently "A Model Bill for Statute Authorizing Adoption of Codes by Reference" has been published by the Housing and Home Finance Agency, which offers a device for keeping codes current with standards revisions.

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Payments in Lieu of Taxes on Public Housing

THE *Washington News Letter* of October 12 reports that payments in lieu of taxes on low-rent housing projects will be made this year to municipalities. House members of the supplemental appropriation conference committee accepted the Senate amendment repealing the ban on the 5% and 10% payments. The victory means that about 140 cities and towns now will receive payments in lieu of taxes on their low-rent housing projects at a rate of 10% of the shelter rents for fiscal 1950, and for fiscal 1948 and 1949 will get retroactive payments up to 5%. House approval of the amendment killed the clause in the Independent Offices Appropriations Act which, in defiance of the new U. S. Housing Act, held the payments to the terms of obsolete contracts, denying any payments whatsoever to about 100 municipalities.

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LITTLE ROCK, ARK.

Water Demand Doubles in 12 Years

IN LITTLE ROCK, Ark., Manager-Engineer L. A. Jackson has just seen an 8-mgd filter-plant addition built into his present 15-mgd plant capacity. This addition represents a quiet reminder that estimates of future demand frequently materialize in the way one expects faster than one anticipates. And it gives solid evidence of the value and guidance that a well-engineered development program provides.

Little Rock purchased its water system in 1936. At that time the city used an average of 6.7 mgd. Immediately following the purchase, the city constructed a new source of supply and filtration works. The new supply, Lake Winona, has a safe daily water yield of approximately 34,000,000 gallons—well in excess of the daily water demand.

Present Facilities

The new filtration plant, constructed in 1936, was designed to filter 8 mgd. This, together with the existing old filter plant, provided a normal capacity of 15 mgd.

Today, the combined facilities include a coagulation and settling basin and two filtered-water basins; they also include a total of 14 half-mgd filters installed in 1918 and 1923, and four 2-mgd filters completed in 1936, making the total rated capacity 15 mgd.

The coagulation and settling basin consists of two 2½-mg concrete sections with a single dividing wall. Each basin is equipped with a Dorr flocculating unit. The average detention period in each half is four to six hours. The average depth is 15 feet. One-half of the basin was built in 1912; the other in 1928.

The two filtered-water basins were built in 1886 and are still in use. One has an average depth of 15 feet and the capacity is 5½ mg. A roof was added to it in 1942. The other was roofed when constructed. It has a capacity of 5 mg, a depth of 16 feet, and a 9-foot dividing wall.

The filters put in service in 1938 were equipped with cast-iron pipe underdrains. In the meantime, one of these, for trial purposes only, was fitted with Aloxite porous-plate underdrains. The four new filters were equipped with a Leopold Tile underdrain system, giving Little Rock a total of three types of filter drains.

Everyone who had a part in this important municipal improvement felt certain that it would meet the water supply needs of Little Rock for the remainder of his lifetime. Every indication confirmed this estimate. By 1940, the use of water had risen only to 6.9 mgd. Rarely did the maximum summer peak demand ever approach the 15-mgd plant capacity.

In 1941, however, the discipline of war brought about, among other things, the activation of Camp Robinson. The responsibility of supplying it with water moved the daily usage upward sharply from 6.9 to 9.5 mgd. And since 1941, with the exception of one year, there has been a steady increase in water use. At the end of 1948, the average daily demand had risen to 12.7 mg. In other words, in the 12 years that the city has operated the water service, the amount of water used per day has almost doubled. No one in Little Rock would have dreamed of seeing this happen in so short a time.

Actually, the demand started going over the filter capacity quite regularly in 1945. During 1947 and 1948, Manager Jackson usually operated the filter plant at rates exceeding 20 mgd to meet the city demand.

However, as is well known, it is not good policy to overload a filter plant continuously. Therefore, the Board of Water Supply decided to correct the deficiency by supplying the 8-mgd filter plant capacity referred to earlier.

Preliminary studies were made in 1947, and in March 1948 plans and specifications covering the new filter-plant addition, prepared by Burns and McDonnell Engineering Company, of Kansas City, Mo., were submitted and approved by the Board. In the same month, bids were reviewed covering the installation of filter-plant equipment, and this work was awarded to E. W. Bacharach Company on its $94,698 bid.

In May 1948, bids were reviewed covering the construction of the four filter units and the building. This contract was awarded to the Tri-States Construction Company, Little Rock, on its bid of $120,000. On June 17, 1948, excavation for the new plant started, and by August 15, a year later, the entire plant went into operation.

The improvement brings the capacity of the filter plant up to the rated capacity of the transmission line from Lake Winona, and the capacity of the distribution system up to the point where it can deliver water to 26,000 customers. This means that the entire system is in balance, a factor that should improve the over-all grading of the system by the National Board of Fire Underwriters.

The entire construction program has been entirely financed from earnings without any increase in indebtedness. The completion of this project brings the total valuation of the physical property to a figure exceeding $9,000,000.

NEW 8-MGD FILTER PLANT ADDITION BOOSTS PLANT CAPACITY TO 23 MGD

A view into Little Rock's new filter room.

Aviation Progress in Waterloo, Iowa

By WALTER E. BETSWORTH
Airport Manager
Waterloo, Iowa

WATERLOO, one of Iowa's important industrial and agricultural centers, has a chart for its aeronautic future in its new Class IV municipal airport.

The citizens of Waterloo a generation ago decided that dependence on agriculture was not enough. With foresight and courage, they started a variety of small industries. These have grown and expanded until today Waterloo leads all cities in Iowa in the value of its manufactured products.

They also realized that if industry is to continue to be attracted here it must have good transportation facilities. This, of course, made air-transport connections mandatory.

In 1943 the people of Waterloo voted a bond issue of $400,000 to build a municipal airport. With this money they bought 1,703 acres of land and entered into an agreement wherein the United States Government would build a Class IV airport.

Well Designed Runway System

The airport was built with government funds under the supervision of the Civil Aeronautics Administration and would undoubtedly have been used by the military had not the war ended about the same time the field was completed. It has one of the finest runway and taxiway systems of any commercial airport in the middle west. Three paved runways 150 feet wide by 5,400 feet long are joined by a well-designed pattern of taxiways. The approaches to the runways are unobstructed, with glide angles of 60 to 1 in all directions. The airport lies within the city limits, five miles west of the business district and three miles east of our neighbor, Cedar Falls.

The new airport, by vote of the people, was placed in the hands of an Airport Commission in September 1945. The Commission is composed of five men, who serve without pay. Chairman of the Commission is R. A. Rath, president of the Rath Packing Company, the largest independent meat packer in the United States; the other members are James M. Graham, president and chairman of the board of the National Bank of Waterloo; Harry M. Reed, an attorney; Dr. D. T. Mowbray, a podiatrist and former Naval pilot; and James O. Lowe, general traffic manager for the John Deere Waterloo Tractor Works.

Shortly after organization of the Commission, a manager was employed to start a development program. All that existed on the field at that time were the runways and the lighting and drainage systems. The airport proper was soon fenced, and the perimeter land, not needed for landing area, was leased to neighboring farmers. Two new hangars were purchased from surplus government stocks and erected on the field.

Airline Use

On July 29, 1947, the Civil Aeronautics Board awarded a certificate to Mid-Continent Airlines to operate schedules airline service into Waterloo between Kansas City and Minneapolis. The city erected a small temporary administration building, and in February 1948, schedules airline service was a reality in Waterloo. The passenger traffic at Waterloo has exceeded the most optimistic hopes of Mid-Continent Airlines officials and even exceeded the predictions of the local Chamber of Commerce. The airline business has more than doubled here in February and March of 1949, as compared with the traffic in the same months of 1948. The first year of scheduled airline service saw over 8,000 passengers being loaded and unloaded at the Waterloo

At this time only the first floor of the airport terminal building at the Waterloo Municipal Airport is being built.

Airport with over 20,000 passengers going through the air-terminal facilities. Mail approximated 48,000 pounds; express, 38,000 pounds; and freight, 21,000 pounds.

In the meantime, Parks Airlines has received a certificate to operate a feeder-line route through Waterloo between the terminals Sioux City and Chicago.

In June 1948 the first manager resigned, and the Airport Commission employed as manager the writer, who had been managing the Sioux City Municipal Airport for the past eight years. Our first realization was that we had a serious lack of sufficient machinery and operating equipment to maintain and operate the field properly.

After numerous trips, we finally acquired surplus war equipment valued at approximately $50,000. Some items included a fire truck, a 3-ton GMC four-wheel-drive dump truck and snowplow, a 105 cfm LeRoi air compressor, 80 runway-marker light-top assemblies, a road grader, four tractors, a tractor-mounted rotary sweeper, fire extinguishers, and many other items. Now at least we had equipment with which to work. The only cost to the city of Waterloo for this equipment was the necessary transportation cost to get it to Waterloo.

Added Facilities

Shortly after July 1, 1948, Mayor Bailey Barnes of Waterloo received a letter from Leonard Jurden, Fifth Regional Administrator for the Civil Aeronautics Administration, advising him that Waterloo had been tentatively awarded a grant of $67,000 for airport-construction work.

A few days later Paul V. Roberts, Iowa District Airport Engineer for the Civil Aeronautics Administration, came to Waterloo and discussed preliminary arrangements necessary for construction of a new airport administration building. After much preliminary work the Airport Commission chose the local architectural firm, Flinn and Saito, and plans for the building were started.

Before concerning ourselves too much with the building plans, we worked out a comprehensive master plan for the development of the airport. This includes new entrance and exit roads, parking space, planting tracts, and observation areas for spectators. The acreage on the west side of the administration building is designated for the development of private flying, for schools, flight operators, maintenance, repair, servicing, hangaring and parking of personal aircraft. The east side is laid out for the development of commercial operations, airline-maintenance work, hangars, servicing, and parking. Air-freight warehouses and loading and unloading docks are also located in this commercial area. Recreation grounds have been platted between the building area and the highway, and eventually much of this tract will be planted to grass and facilities provided so that people can bring a picnic lunch and spend their leisure hours at the airport.

Administration Building

The first unit of the Administration Building, on which contracts have been let, is now under construction. The building is a one-story structure, 40 feet by 162 feet, with a full basement. The framework of the building is constructed of structural steel, and the exterior will be curtain walls of hollow tile and face brick. Constructed in this manner, the building will be easily expansible.

One feature which is expected to provide a good revenue is a very modern attractive restaurant. The field side of the restaurant will be glazed with Thermopane glass from the ceiling to the floor, affording the patrons a very fine view of the airfield and loading ramp. The restaurant will be beautifully appointed and decorated and lighted with soft, indirect fluorescent lighting. The floor will be asphalt tile and the ceiling acoustically treated to assure quiet dining. The lighting is to be controlled by a rheostat so that when planes are loading or unloading on the ramp at night the lights in the restaurant can be dimmed while the patrons watch the operations on the brightly lighted apron. A private entrance is provided for the dining room customers at the east end of the building, and a check room is conveniently located inside this door. By bringing the restaurant patrons from the city in through a private entrance, we will eliminate unnecessary congestion in the waiting room and lobby.

The restaurant will be furnished with the most modern kitchen and servicing equipment. It will seat approximately 90 people. Adjoining the main dining room, but separated therefrom by plate-glass partitions and doors forming the back part of the waiting room, will be a soda fountain, snack bar and coffee shop. The news and cigar stand will also be located here.

From a well-furnished waiting room, passengers may look out upon the loading ramp and apron through large picture windows, also extending from the ceiling to the floor. Adequate facilities are provided for the airline ticket offices and the airport administration offices. The building is completely air conditioned. On that portion of the roof over the restaurant we have provided a spectators ramp where interested persons may have a grand-stand view of all activity on the airport.

A concerted effort is being made by the Airport Commission to provide facilities for the private flyer. They realize that the airport cannot be succuessfully operated without healthy private-flying development. In the basement of the administration building, a clubroom or lounge is being provided for the use of the local aero club, together with locker room and lockers for the storage of the flying gear of private flyers.

The Waterloo Flying Service, which is operated by Bert Nagel and Jack Snodgrass, has recently moved its entire operation from Canfield Airport, a small private field nearby, to the Waterloo Municipal Airport.

The airport management is presently planning the erection of a new fireproof shop building, and Waterloo Flying Service is making arrangements to provide the flying public in this area with the only Civil Aeronautics Administration-approved repair station in the State of Iowa.

Hundreds of teen-agers, boys and girls, and, yes, their dads too, are finding a new interest at the airport. In the hangar leased by Waterloo Flying Service, we partitioned off a large sales room, and in this room we built a very unique and attractive "Hobby Shop" from knotted pine.

Jack Snodgrass and Bert Nagel have equipped this Hobby Shop with several thousand dollars' worth of merchandise. It is the most complete Hobby Shop in the State of Iowa, on or off an airport. Model airplanes, of all types; solid, plastic, and fabricated models; rubber-, gasoline-, and CO_2-powered models; model gasoline and diesel engines of all sizes, together with gliders, are for sale here. A complete line of electric trains, including all types of locomotives and power plants, track, switches, cars of all types, road bed and model buildings are here to satisfy the most ardent train fans. Also in stock are model boats, model tractors, and model automobiles with all accessories. The shop carries a complete stock of balsa wood, tools, knives, fuel, spark plugs, propellers, batteries, glue, dope, spinners—in fact, everything to delight the model enthusiast, regardless of what type of model might be his particular hobby.

Some planting and seeding will be done in front of the hangar. Waterloo Flying Service has arranged for comfortable seats and tables with beach umbrellas so that the wives and kiddies can sit comfortably in the shade if they desire to watch their "G. I." papa fly.

The Waterloo Airport is rapidly becoming the center of the air-transportation industry in northeast Iowa. Waterloo has been built and will continue to build because with vision her people prepare for the future.

City Hall-Campus Cooperation Makes Louisville "Internship" Program Successful

By REUEL G. HEMDAHL
Professor of Political Science
University of Louisville
Louisville, Ky.

WHILE an increasing number of American universities and colleges are providing education for the public service, and professional and graduate schools in particular have arranged "work experience" for their students in the techniques of their specialties, relatively few practical steps have been taken to attract capable and promising undergraduates into the developing field of municipal administration. The Louisville "internship" program has proved itself successful thus far, and we believe that other municipalities can benefit from a similar approach.

During December 1947 and the first month of the following year, the idea of providing University of Louisville undergraduates with practical experience in municipal administration was discussed by the writer and various Louisville municipal officials. The conversations brought to light that there had been thinking in the City Hall as well as on the campus concerning the possibility of a joint enterprise of this nature; but not until we broke through the imaginary wall between the campus and the City Hall, and got together on the matter, was anything definite in the nature of a systematic plan of action accomplished.

A trial heat was held in the Finance Department during the first half of 1948; basic policies were formed; and from that point on, one department has been added with each new term at the university. Although full-time employment as a regular municipal employee was not contemplated or even suggested at the initiation of the plan, two of the first three interns have been retained as assistants to directors of departments: Richard Piatt in the Department of Welfare, and Robert McGrath in the Personnel Office under the Civil Service Board. These two young men, and others who moved into related fields of activity, demonstrated that university students can assume responsibility and can produce results. They proved the value of this project. A continuation of the internship program is assumed by establishment in the municipal classification system of a separate "class" for student workers.

The students selected for internship are not experts and know that they

PHOTO COURTESY OF STANLEY E. MEYER

Mrs. Laura Lewis, Director of Civil Service at Louisville, and student interns (standing) administering a written examination to policemen seeking promotion.

PHOTO COURTESY OF CHARLES KAYS

F. Kenneth Weikel, political science major and student in city government, shown working with William D. Meyers, Louisville's Director of Finance.

are not experts in any field of municipal administration. They are sent to the City Hall *to learn* under experienced supervision. Each student, however, has a skill to contribute, so that he can assume responsibility for specific assignments. He has also had basic courses in municipal government and public administration; is above average in grades; and most important, had demonstrated in campus activities an unquestioned ability to "get along" with people.

Before placements, every effort is made to have a crystal-clear understanding with the department head concerning the year's internship. Furthermore, no placement is made unless the department is willing to agree to a permanent arrangement, so that continuation year after year can be assumed.

The student is employed by the city on a half-time basis at a salary of $75 per month for one fiscal year. Specifically, he works four hours in the City Hall each afternoon, Monday through Friday, and is fully responsible to the director of the department for this time. During the year, he is moved from one bureau to another in accordance with the needs of the department, serving on occasion as a utility employee. In the process he gains an over-all acquaintanceship with administrative problems in the various bureaus. The student also receives three hours' university credit for the experience, provided he submits a substantial paper satisfactorily describing the operations of the department, summarizing what he has read in the field, and adequately analyzing his total experience. Throughout the period of internship, he has weekly conferences with his professor; also periodically all the interns meet for group sessions. To complete the triangle, the professor keeps in touch with the directors of the departments.

Satisfaction Expressed at City Hall

It seemed to us that basically there should be an evident benefit to everyone concerned, sufficiently clear for each and every person involved to enter the arrangement wholeheartedly. The advantages to the student, the professor, and the university are, I believe, obvious. We have also attempted to make it worth while for the city. On this point, the Director of the Louisville Civil Service Board, Mrs. Laura Lewis, in an annual report to the Mayor's Office for the fiscal year ending June 30, 1949, stated,

> The progress made this last year of which the Board is especially proud is the expansion of the intern program, whereby university students benefit by on-the-job training. . . . This program is beneficial in three ways: (1) It enables the city administration to keep constantly in training a group of potential employees; (2) it enables the university to offer field placements to its students where they can coordinate their theory of government with its practical application; and (3) each year such a program activates students into becoming well-informed advocates of clean and progressive government.

When asked recently about the program, the Director of Finance, William D. Meyers, in the midst of budget estimates, quickly gave his evaluation:

"The students that have been assigned to this department have given us a big hand on various projects and have accomplished much. They have more than earned their salary. I am 100% for it."

Miss Louise Diecks, Director of Welfare, looked up from reports on her desk to add this comment,

"I feel that this department has benefited greatly by your plan for the use of students in actual work experience. I certainly hope that this becomes a continuing program."

Robert S. Russell in Planning and Zoning and William Moore in Recreation, who recently entered the project, have also expressed satisfaction. Herman T. Meiners, Director of Public Works, gladly accepted a student intern for this winter; and Colonel Carl Huestis, Chief of Police, is considering the move for the coming fiscal year.

A definite operational principle has been and is to avoid excessive organizational apparatus, which can become a handicap to effective realization of any goal. One member of the faculty at the university has been given a free hand and full responsibility within the regulations of the University of Louisville and the College of Arts and Sciences of the university to proceed from the point of view of the campus. The departments of the City of Louisville follow their regular procedures. The close working relationship between the intern, the director of the department, and the professor, is all-important.

Concerning the future, Mayor Charles Farnsley, whose support has been invaluable, says,

"I expect to see this develop into something bigger and more significant. My philosophy of government does not isolate any part of the community unto itself. The University and other agencies in Louisville are to become functioning members of a partnership in government."

Preparing and Revising Local Building Codes

AN EXCELLENT report, *Preparation and Revision of Building Codes*, by George N. Thompson, has just been released by the National Bureau of Standards of the United States Department of Commerce.* The report emphasizes the effect on the community of a building code and urges that a thorough study of city needs be made before work on a new code is started.

> The influence of the building code on city growth is greater than is ordinarily suspected [the report declares]. The requirements, operating over a period of years, affect the physical character of the community to a marked degree. There are other effects which should be realized. If the requirements are so severe as to impose building costs greater than those prevalent in other cities, new industries may be diverted elsewhere, rents may be increased, and other effects produced. If the permissible building heights and types of construction bear no relation to the city water pressure and efficiency of the fire department, insurance rates may be affected. In a standard method for rating cities for fire insurance purposes, the quality of the building code and of its administration is a specific point. If peculiar requirements are made, as is sometimes done, necessitating the use of nonstandard products, manufacturing processes may have to be altered to meet the special requirements of the municipality concerned. Thus, the code can be a beneficent influence guiding the general course of construction in safe channels, or it can be a means of hampering the orderly growth of the community that it is supposed to protect. . . .

Study of City Needs

Before work on a new code is started, it is well to make a thorough survey to bring out the resources and characteristics of the municipality. This is necessary in order to deal intelligently with such matters as fire limits, building height, and other matters. The physical lay-out of the city, the nature and location of its industries, the prevailing heights of buildings and their types of construction and occupancy, the likelihood of severe wind and snowstorms, the efficiency of the fire department, the adequacy of the water-supply system, the number and character of building fires, the qualities of building materials customarily marketed, are all matters deserving of attention. Consideration should also be given to complaints about the existing code, if there is one, and to suggestions for bringing it into harmony with practice elsewhere. . . .

* *Preparation and Revision of Building Codes*, by George N. Thompson. Building Materials and Structures Report BMS116. September 1, 1949. 17 pp. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. 15 cents.

Paving

On America's Poorest Subgrade

Problems of marsh-like soil and lack of natural storm drainage overcome in New Orleans' street-improvement work

By ALBERT M. WYLER
City Engineer
New Orleans, La.

NEW ORLEANS has made a flying start on a $15,000,000 street-improvement program over what is probably the most troublesome subgrade in any American city.

Parts of about 675 streets are to be paved, resurfaced, asphalt-surfaced, or provided with sub-surface drainage. New boulevards, paved connections cut through former dead-ends, and a host of new streets where nothing but weeds existed before are in the program. One of the largest projects is a new six-lane highway into the heart of the business district.

All City-Financed

It is the first primarily city-financed street program in 18 years. Of the $15,000,000, the greatest part—$10,500,000—is being derived from the sale of 40-year general obligation bonds.

Another $3,000,000 is being provided by the New Orleans Public Service, Inc., a private utility which operates the mass transportation service. The company is changing over from street-car to motor-bus and electric-trolley operation, removing tracks and paving the street as it does so by arrangement with the city.

Most of the remainder is being financed from the city general fund, one instance being the dedication of $400,000 to the street-construction fund from the sale of publicly owned markets.

Finally, a bequest for park beautification is providing for the construction of a 2½-mile scenic boulevard alongside huge City Park. This boulevard will also serve as an important traffic artery.

No charges are being assessed against abutting property owners and taxes are not being increased. Fortunately, the city has a long-standing 10-mill tax dedicated to debt retirement, and it is this existing tax which will service in full the $10,500,000 bond issue.

Since 1931, the only consequential city paving had been done through WPA projects. Lack of revenue during the depression and the wartime ban on such construction accounted for this situation.

During the past two years, however, over $7,000,000 worth of street improvements have been completed or contracted, involving work on 406 streets.

Because of keen competition between approximately 15 contractors, bid prices have generally been below advance estimates, although these estimates have constantly been revised to reflect current costs and the trend of recent bidding.

However, it should be emphasized that paving costs in New Orleans are relatively high because of conditions imposed by nature. In some cities, rainwater is no major problem, since it drains off naturally. In addition, sturdy soil permits the use of inexpensive paving materials, even when heavy traffic is involved.

But in New Orleans, no natural drainage exists, and it must be artificially supplied before any permanent street work of consequence can be undertaken. Much of the soil is often referred to as "coffee grounds."

The city lies between the Mississippi River and Lake Pontchartrain. In many places the normal river level is higher than the ground elevation. New Orleans in effect is like two huge saucers side by side, bounded by steep walls that keep out river and lake waters.

Pumping Required

Every drop of rain that falls on these two basins or saucers must be pumped out by artificial means, some drops traveling as much as seven miles through drain pipes, canals and pumping stations with intakes as large as 14 feet in diameter.

The starting point in the street program is subsurface drainage, of which close to $2,000,000 is programmed thus far. Without it, most street investments would soon be lost.

Catch basins are installed every 180

Here is a typical new street in New Orleans. Notice modern lip curbing, which is easy on automobile tires.

Installing subsurface drainage pipes must precede major work here—a factor in the relatively high paving costs.

As a temporary expedient, some "shelled" streets are given an asphalt paving surface. While this is not as satisfactory as other types, it is far less expensive and helps get neighborhoods away from muddy, rutted streets.

Workmen pour the 8-inch concrete foundation of a new double-roadway boulevard. Driveways shown here enter a wide separating strip in the commercial district, which is to be shelled and used as a protected parking area.

feet, with plain concrete pipe being used in dimensions from 10 to 21 inches in diameter, and reinforced concrete drainage pipe used in diameters from 24 to 36 inches. Canals vary from 42 inches to 20 feet square.

The cost of subsurface drainage, including one drainage line and catch basins, but with house connections omitted, is about $66,000 per mile. This is known as "relief drainage." When two parallel lines are used on opposite sides of the street, the cost is increased to $96,000 per mile of street. The latter is "complete drainage."

Unstable Soil

In addition to this cost element, there is the fact that paving that serves well elsewhere in the nation simply cannot be used on New Orlean's shifting soil.

New Orleans' soil, built up by alluvial and marine deposits and decayed vegetable matter, is subject to shrinkage whenever the water table is lowered. Installation of subsurface drainage, vitally necessary for preservation of the individual street, itself often causes general subsidence. Engineers like to impose a wait between drainage installation and paving to allow for this. Near-by trees are also a problem. In drought periods their roots draw moisture from the soil, often causing subsidence beneath foundation paving. Therefore, the planting of shallow-root shrubbery is being encouraged along the new streets, instead of large trees.

Temporary and Permanent Surfacing

Asphalt surfacing—2 inches of bituminous base course and an inch of bituminous wearing course over an existing shell or gravel base—is looked upon as a temporary expedient to get neighborhood residents out of the mud. The usual width is 18 feet.

In residential areas with heavier traffic, a 26-foot roadway is being employed. (Narrow rights of way enforce narrow streets.) It has a 6-inch base of portland-cement concrete, with a compressive strength of 2,000 pounds per square inch in 28 days and a minimum cement content of 3.75 bags per cubic yard of concrete. Welded-steel reinforcement is required to have an effective weight of not less than 77 pounds per hundred square feet.

A wearing course of 1½ inches of bituminous concrete with seal coat, or natural limestone rock asphalt, is used.

The per-mile cost of this type of paving with single-line drainage, exclusive of driveways, is approximately $218,000. Minus the drainage and driveways, it is $152,000 per mile.

Double-boulevard roadways, with a separating strip of about 20 feet occupied by an open or cased drainage canal, are used to a greater extent in New Orleans than perhaps in any other city in the nation.

They consist usually of two 32-foot roadways, with the type of heavy-duty concrete and asphalt paving described immediately above, except that the base is increased from 6 to 8 inches. The cost, including drainage, but excluding sidewalks and driveways, is about $445,000 per mile.

Some single-roadway heavy-duty paving with 8-inch base is also being used, at approximately $163,000 per mile, with 28-foot width and single line drainage.

Owing to the shifting soil conditions and the age of many streets, resurfacing is also a major part of the improvement program. This consists of a 2-inch bituminous leveling course and a 1-inch bituminous surface course, which is either bituminous concrete with seal coat or natural limestone rock asphalt. The per-mile cost on a 28-foot roadway is about $32,000.

Of considerable interest is the fact that New Orleans is the first city in the nation to adopt the Marshall method for the design and control of bituminous paving mixtures.

This method, developed by Bruce G. Marshall of Jackson, Miss., eliminates guesswork and individual opinion in judging the quality of such mixtures. Through the use of special instruments, Marshall measures simultaneously the sheer resistance and degree of plasticity of samples prepared every few minutes from the plant. The result is certain knowledge of better paving, even before it is laid and tested by time.

Heretofore, such practical yardsticks for measuring the essential physical properties of bituminous paving mixtures have been lacking.

Park Executives Hold Successful Conference

MORE than 600 persons from 37 states, the District of Columbia, and Canada attended the annual convention of the American Institute of Park Executives held at Detroit from September 20 to 23.

Delegates, with members of the National Conference on State Parks as their guests, heard an address by Newton B. Drury, director of the National Park Service, who asserted that a half billion dollars is needed to make necessary physical improvements in national parks.

At the present rate of appropriations, it will take more than 20 years to do the job, he said. Mr. Drury asserted that the national parks have been neglected for many years. Accommodations have not kept pace with the steadily rising influx of visitors—from 3,500,000 in 1931 to well over 30,000,000 this year. He expressed hope that Congress would speed up appropriations.

New officers elected were James J. Curtin, Superintendent of Parks and Recreation, Waterbury, Conn., president; Lewis G. Scoggin, State Park Director, Tallahassee, Fla., vice-president; Louis S. Cole, Superintendent of Parks, Glenview, Ill., treasurer; Roger Conant, Curator of the Philadelphia Zoological Garden, and R. R. Murphy, Superintendent of Parks, Oklahoma City, Okla., directors.

Delegates voted to make Montreal, Canada, the 1952 convention city. Next year's convention will be in Dallas, from September 24 to 27. The 1951 meeting is scheduled for Miami, Fla.

Municipal
Public
Relations

The City Tells Its Story

By HENRY DAVIS NADIG, *Director of Public Relations, New York Regional Plan Association*
Executive Director, Association of Municipal Public Relations Officers

The media of MPR: The annual report

PRESENTABLE, palatable, and provocative: those are the three qualities which must characterize your annual municipal report—if it is to be an effective representation of your municipal achievement.

These qualities are already in evidence within the pages of more than a few municipal reports that have crossed my desk in the past two and a half years. They are noticeably lacking in others. But almost every municipality turning out a printed annual report is beginning to see the potentialities of this important MPR medium. And when you consider that only a scattering of municipalities (roughly 125) are now using the medium, the possibility of a substantial increase in the number of such reports suggests that we may be in store for constantly new approaches, techniques, and advancements.

No Future for Tasteless Tomes

The day of such deadening documents as the "243rd Annual Report of the Town Officers of (a Massachusetts municipality) and the Town Records for the year ending December 31, 1948" (476 pages of solid type)—that day is gone; or it surely ought to be, right soon. It cost the town (population: 59,940) the nice sum of $3,538.74 to print that report! (The figure is given in the report.)

How many of these tasteless tomes were printed, I don't know. But I'll wager that Taunton's (population: 38,000) 36-page annual ($569 for 2,500 copies) has had a great many more readers, has accomplished more for the municipal government civic-wise and is not gathering so much dust.

As for another Massachusetts municipality (population: 18,708, 1940 census), on page 300 of its 379-page 1948 annual report, the figure of $3,003.20 is given under "Town Reports," and since there seems to be no other mention of it, one assumes this means the annual report. It would seem that this municipal government is clearly wasting close to $2,500 of taxpayer money by not simplifying its annual reporting!

There's still quite a lot of this unnecessary and, to say the least, unpopular type of reporting among the six-score cities and towns which publish annual reports. Its economic and political weakness should certainly be shown up.

"The Political Challenge of Municipal Public Relations" will be discussed at the session arranged by the Association of Municipal Public Relations Officers during the Annual Conference on Government of the National Municipal League, Hotel Lowry, St. Paul, Minn., November 28-30. Martin R. Haley, Public Relations Director, St. Paul, will be chairman. Scheduled to speak are: Edward T. Beall, Norfolk; Hayes A. Richardson, Kansas City; Joan Joiner, Minnesota League of Municipalities, and Ewen C. Dingwall, Seattle.

Today's slant—the modern, practical, economic, citizen-interesting way—is the graphic, tasteful and stimulating simplified report, as characterized by those cited from time to time in this column for their excellence.

Well—what can we look forward to in the way of new developments in annual municipal reports? What are some of the possibilities?

Actually your city's story is being written in the day-to-day activities of your various departments. Why not tell it that way, then? Why not use the press and the radio for daily reporting—and why not, each week or each month, pull out the highlights for possible inclusion in your annual publication? Watch for good pictures and save them in your annual report file. Tell your story in more pictures, fewer words.

Any city that can afford to spend $3,000 or more for printing an annual report might try a continuous, loose-leaf report. This could be done monthly and could contain not only the vital actions taken by the local government but also a pictorial record of local development, in four or possibly eight pages. At the proper time the approved budget for the ensuing year could be included and likewise the expenditures for the past year.

At the conclusion of the city's year, the best of these pages, along with any additional material, could make up a single attractive report, if desired—and, indeed, might be used as a municipal promotion piece. The citizen would thus have his bread and his cake, too,—and both would be easy to digest. Is this method practicable?

Such an idea could only be adopted and carried out successfully by very progressive and imaginative cities.

You can't just slap out an annual report—not a good one. The best of the municipal reports—those most appealing and most provocative to the average citizen—are those into which has gone a great deal of studied care. In the past, most reports have been an assemblage of statements written by different departments.

Good Editing Needed

Today's modern report—whose prime objective is to maintain active citizen interest in government—requires the singularity achieved only through the fine direction of a good editor. In the future, it is likely that annual municipal reports increasingly will be the responsibility of the municipal public relations director.

We are beginning to see the local newspaper used more frequently as the means of publishing and distributing the annual report. If the annual municipal report is as dead next year as yesterday's paper is today, this method may in the long run be the most practical, the most economical, and at the same time the most effective in gaining and holding citizen interest.

Look at it this way: Your various departments have their statistical reports in any event; they can always be referred to by those seeking such details. Why then publish a three- or four-hundred-page statistical book? No good reason. All right. That leaves the only question one of the *form* which popular presentation of the report shall take.

Except for the loose-leaf idea mentioned above (and until someone comes up with something else new and different), there are only two alternatives in printing: (1) newsprint, either in connection with the local paper or printed and distributed separately, or (2) the booklet style.

The decision as to which of these

INSIDE
Syracuse
GOLDEN
Colorado
ANNUAL REPORT
1948-49
THE NORFOLK
STORY...
NEW AIRPORT TERMINAL
NEW PORT AUTHORITY
NEW PUBLIC SCHOOLS
YOUR
CITY
GROWS
THE RICHMOND NEWS LEADER
New Council-Manager Government Reports to the People
First Budget of New City Government
Expands Services Without Tax Increase
ANNUAL REPORT
OF THE CITY MANAGER
ALLIANCE, NEBRASKA
COUNCIL MANAGER
FORM OF GOVERNMENT
1948
It's great to live in
Milwaukee
Annual Report 1948
Raleigh, North Carolina

alternatives meets your needs and desires depends upon: (1) the nature of your various publics, and (2) the kind of impact you wish to or must achieve. Experience will undoubtedly be your best teacher in determining use of one method or the other.

Presentation of the annual report by radio and television looms as a real practicability. Already this is being done in New Orleans. And in those cities in which mayors and city managers report frequently to their citizens by radio and video, coverage of the annual report is a natural. Where reports are printed but the air not yet utilized in presenting them, we may expect an increasing effort to amplify and reach more local individuals.

Is it too sanguine to suggest, furthermore, that one of these days we may find some municipality making publication of the annual report an occasion for a municipal conference on the city's affairs—a time for stock-taking *in person* and with the people? Could this be especially effective in the smaller cities?

Reply Postcards

The City of El Paso, Texas, took advantage of its municipal report by inserting a reply postage card asking for ideas for improving the city. (See illustration.) It would be interesting to know how many cards were returned. The idea is a smart bit of MPR—seeks the personal reaction on the spot, and approaches the thought implicit in the conference suggestion.

Has any city tried the motion picture for presenting the annual report? Not that I know of. But here is a very realistic medium through which the report, if skillfully produced, could dramatize your city and its assets with the utmost of human interest. Besides, annual-report movie shorts would be by their very nature good promotion material: moviegoers from out of town would remember at least a few of the highlights more vividly than they would call to mind purely audible references or even those limited in the printed page of a book.

Not only does the local-theater showing of the movie report hold much of value to the citizen and the official city; the short or shorts (for several might be developed to provide complete reportage) would serve as a vital instrument of MPR in the schools.

Still another possible technique as yet untouched is the postcard. A continuing series of pictorial, graphic postcards would provide a constant flow of municipal information based on, or actually forming, the annual report. These would be very popular in the schools and might well become "collector's items." They could be used for various purposes, such as displays mailing with tax bills, posting on civic association bulletin boards, etc.

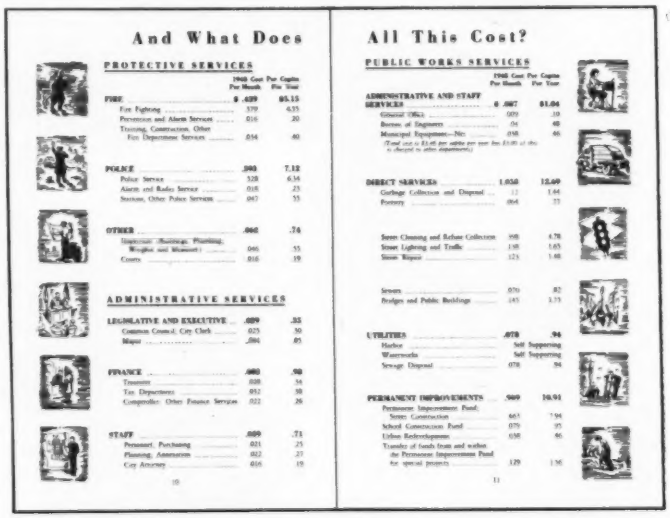
The cost of annual reports, by whatever method produced and however they are to be exploited for the benefit of the city (and therefore the citizen) cannot be passed off lightly. But this cost should be weighed carefully against present municipal conditions, including the state of active citizen interest and the state of the budget—both of which can be enhanced perceptibly by good MPR toward the attainment of a well-rounded, municipal economy.

Cities today, and tomorrow more and more especially, have the opportunity of an interesting and vital choice in connection with annual municipal reports and official MPR as a policy: they can go along haphazardly in the old rut on the rocky road, rumbling with antique equipment and without either a sense of direction or clearcut objective, picking flowers by the wayside like Ferdinand, and in the end just sitting under a sour apple tree; or they can turn onto the paved parkway of practical MPR and with streamlined precision move toward a popularly understood objective to achieve municipal well-being.

Page 7 of the 12-page Richmond, Va., tabloid newspaper report published and distributed as part of the Richmond News Leader. The report is one of the liveliest to date among those produced by this method. Note that this particular page brings the municipal expenditure right down to the individual's dollar cost.

Want to Change Something?
Why Not Help Run Your City?
Your public servants at the City Hall and in all departments of your city government want you to say what you think should be done about this, that, or the other. The services in all different departments are supposed to provide what you want, and here is a chance to let us know.
Tear off the attached card and tell us frankly what you think about it. Don't sign your name unless you want to.
To the Mayor and City Council:
Here's what I'd do to make El Paso a better place for all of us to live:
Name
Address

Good annual report MPR in El Paso, Texas: each printed annual report contained this reply card, offering the reader an opportunity to put in his oar for municipal advancement.



Clever use of pictorial spots in the Milwaukee, Wis., annual report. The answer to the question at top of the page appeared here and on one other page.

A New Boat-House For Kansas City

Entrance to the new boat-house in Swope Park. Note the pilot houses on either end of the upper deck.

By J. V. LEWIS
Superintendent of Parks
Kansas City, Mo.

A PARK improvement of which any city would be proud is the new boat-house completed last spring at Swope Park, Kansas City, Mo.

To facilitate construction without interfering with the normal operation of the old boat-house, the new structure was built 40 feet back of the water line, on dry land. When it was completed all of the ground in front of the boat-house was dredged, making the lagoon a good deal wider.

Total cost of the boat-house, started during the latter part of 1948 and opened to the public on June 11, 1949, was $175,000. Built primarily of native stone, it is 300 feet long, 50 feet wide, and 30 feet high.

There is an observation deck for spectators which has fore and aft shelters in case of inclement weather. Both shelters are made of glass and resemble the pilot houses on Missouri River steamboats. On the observation deck, facilities have been provided for serving food and drinks during the next season, when the Park Department will take over the complete operation of the boat-house, now leased out to a concessionaire.

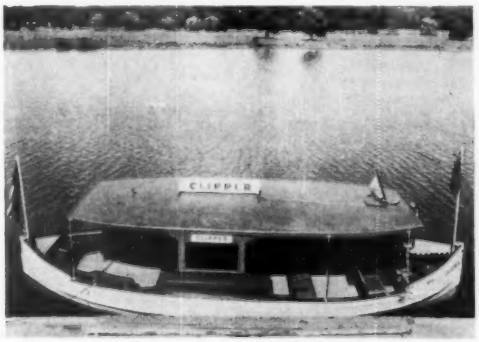
The cashier's booth, where tickets are sold for rowboats, canoes, launches, etc., is on the left as one enters the boat-house. On the right is a modern refreshment stand.

When not in operation the cashier's booth and the refreshment stand are closed with large overhead steel doors.

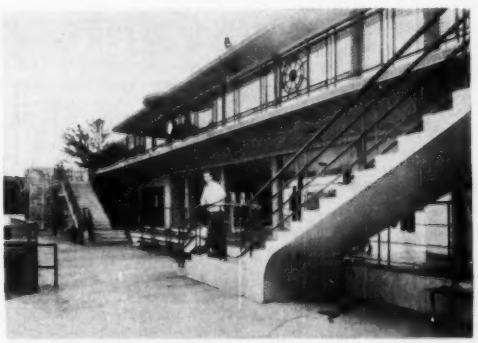
The boat storage contains racks for 111 boats or canoes, with space on the floor for many more. On the opposite end is a dry dock for the storage of the launch during the winter months. After the launch has been placed in this sea garage, the sluice gates are closed and the water is pumped out of the garage, leaving the launch in absolute dry dock.

All of the roads leading to the boat-house are concrete, and there are two parking bays alongside the facility—one for 120 cars, the other for 50 cars. Other parking space is also available near by.

The popularity of the new boat-house is well attested to by the thousands of people who enjoyed a cool hour in it.



A view from the upper deck of the boat-house looking towards the island. Here the lagoon was widened 40 ft.



The upper and lower decks of the new boat-house are shown here. Boating facilities are at the left.

Eighty northern cities tell how they meet the emergency of frozen mains and services

Frozen Water Lines

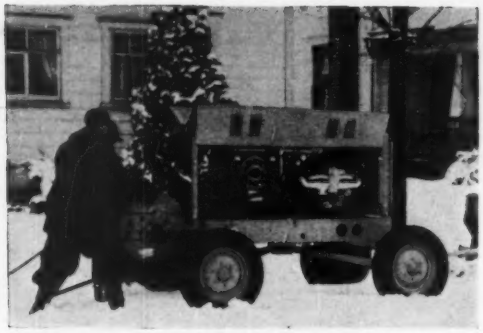


PHOTO COURTESY OF HOBART BROS., TROY, OHIO

Electric welder rolls into position on an emergency call.

WATER-WORKS men measure service failures by the number of times that water is unable to come out of the tap. A broken main may be the reason, so they protect themselves by taking great care in their pipe specifications, the main installation, and joint construction. An outright lack of water may also be the cause; and they correspondingly protect themselves by building a comfortable factor of safety in their supply and storage facilities.

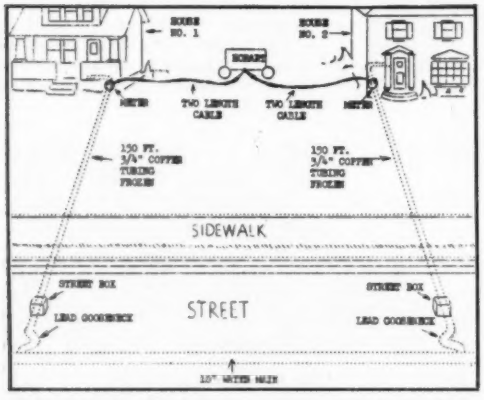
But in winter, they face another potential threat. Frequently the cold drives the paralysis of frost deep into the ground, and builds a frigid, watertight block in the main or service. So here again they protect themselves by laying their mains and services at depths low enough to be out of reach of the frost line. These depths can vary all the way from 30 inches in Fort Scott, Kansas, to 7 feet in St. Paul, Minn., and 9 feet in Minneapolis, Minn., and generally meet all usual problems.

But all municipal officials know that service is not judged on general or average conditions. Reputations rise and fall on how a service operates when conditions are tough, and men and equipment must meet high standards when the cards are stacked against them.

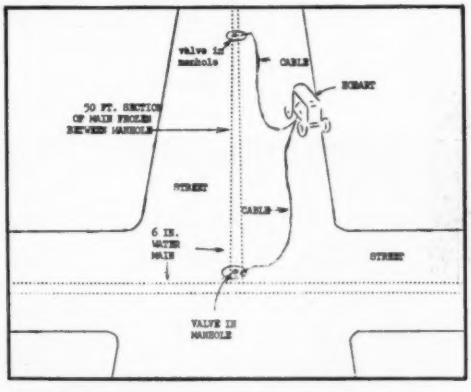
Pipe Depth Not Enough

Traditionally, the weatherman laughs at records. The fact that frost has never dipped below 3 or 4 feet in your particular locality does not mean that it will not. And no one knows this better than the veteran water-works man who has had to keep his system operating when it has. For instance, Kalamazoo, Mich., aims at a 5-foot depth for water mains and services, but in a bad year Superintendent Albert Sabo will have as many as 400 frozen mains and services to put back into use. In Whiting, Ind., Water Superintendent Stephen Dado still keeps as part of his permanent records his experience file on the winter of 1936, when 49 mains and services froze in the month of February alone. That was the same year that Superintendent C. C. Williams of Bloomington, Ill., had over 500 mains and services frozen during the winter, and Superintendent A. P. Kuranz recorded over 200 in the City of Waukesha, Wis. Last winter is written large in the records of Idaho Falls, Ida., when Superintendent William J. Rushton found himself working seven days a week correcting 350 frozen and broken mains and services. These varied from ¾-inch services to 1,800 feet of mains. In Beatrice, Nebr., Director of Public Works Ray Case recorded 50 frozen lines during last winter, which he hopes will not occur again. In Utah, Salt Lake City's Assistant Superintendent

Two examples of the use of an electric welder



KIND OF JOB: Two 150-foot lengths of ¾-inch tubing (one at each of two adjoining houses). COMPLETE CIRCUIT: Cables are ¾-inch copper tubing, two lead goosenecks at the main, and main consisting of 10-inch Universal pipe made a total of 650 feet. LENGTH AND SIZE OF CABLE: 300 feet No. 0 cable doubled. METER READING WHILE THAWING: 375 amperes, 10 volts.



TIME REQUIRED TO THAW OUT: 17 minutes. Above: KIND OF JOB: 50 feet frozen section of 6-inch water main. Clamped joints, lead caulking. COMPLETE CIRCUIT: Water main and cables, 175 feet. LENGTH AND SIZE OF CABLES: 125 feet of No. 00. METER READINGS WHILE THAWING: 400 amperes. TIME REQUIRED TO THAW OUT: About 4 hours.

W. C. Hague wrestled with 436 frozen mains and services last winter. Ordinarily he is troubled with no more than 10 or 12.

It is for reasons like these that most cities, in areas where winters get down to serious business with the thermometer, like to have those mains and services deep, and also like to have some sort of thawing equipment handy.

A survey of 88 cities located in the West and Middle West showed that 77 of them maintain their own pipe-thawing equipment and 11 have made arrangements with the local power company or local welding firms to supply equipment on a rental basis for the same purpose. Two of them stated that although they had no equipment now, they planned to get some in the immediate future.

Gas-Electric Generator Popular

The equipment most popular is a gas-powered electric generator such as is used in most welding operations. The use of a welding machine for this additional purpose gives a municipality an added reason for having this very handy repair tool in its shop. Many, however, use the smaller, more handy Engesser or Darley electric generators designed specifically for pipe-thawing work and no other duties. Some like to avoid the danger of electricity by using steam. The Hauck superheated steam thawer represents a type that is often used.

The remaining water departments with special equipment use combinations of transformers that step up the voltage from the electric distribution system. Superintendent Wallace Johnson, of Huron, S. D., has such a set of equipment. He uses electric transformers that will put out 300 amps or more, and has had the unusual task of thawing a frozen steam line on a railroad pullman car. He described it as somewhat like hooking onto a mass of steel.

Electricity Requires Caution

The use of electricity, however, requires great care. The electric equipment used for thawing puts a load on the pipes that the designers did not intend them to carry. James A. Sweeney, Assistant Superintendent of the Manchester, N. H., water works, described the rules his city has prepared for the guidance of maintenance crews at a meeting of the New Hampshire Water Works Association held in 1948. He warned that unless precautions are taken to connect the lead wires properly, current may stray through the house wiring and cause a fire. Specifically his rules are as follows:

1. Remove the meter from the service line.
2. Disconnect the ground wire, usually found at a point on the water service where it enters through the wall. By doing this, no current can stray through the house wiring.
3. Connect the lead wire from the thawing unit to the water-service pipe near the wall. Connect other wire to a hydrant or a service box near by.
4. After the service is restored, set back the meter and ground wire. Spare ground clamps should be available, since many must be replaced because of corrosion.

Although Mr. Sweeney has used lead substitutes for joints in the water mains for over a quarter of a century, he still has not been able to pass a current through them. His experience has indicated that age seems to have no particular bearing on the ability of the point to carry current at Manchester so far.

Thawing water mains in Painesville, Ohio, is handled by O. E. Ficker, Superintendent of Distribution of the Municipal Light Department. He recommends the following table from *Standard Handbook for Electrical Engineers*, McGraw Hill Book Co., sixth edition, as a guide to pipe-thawing works:

Pipe Size (Iron), Inches*	*Length Feet*	*Volts*	*Amperes*	*Time Required To Thaw*
¾	40	50	300	8 min.
¾	100	55	135	10 min.
¾	250	50	400	20 min.
1	250	50	500	20 min.
1	700	55	175	5 hours
4	1,300	55	260	3 hours
10	800	62	400	2 hours

* To thaw lead pipe, the current must be increased 50%.

Superintendent Louis A. Geupel, of Evansville, Ind., warns that one must know whether the lines being thawed have sleeves with rubber gaskets in them. If they do, the electric thawer will burn the rubber and give the water a foul taste, forcing one to replace the gasket anyway.

Superintendent Harry Kerr, of the New Philadelphia, Ohio, water works, reports an unusual experience he had last winter when one of his crew was thawing a frozen service. His crews use a 300-amp portable gasoline-driven electric welder. After disconnecting the meter and the ground wire, his men connected the cable to the pipe at the entrance to the cellar. This entrance had a union in the line, and after about three minutes this union was completely burned in two. His crews understand the great need to be careful with the machine, but this union was installed in an unusual spot between the waste valve and cellar wall. He believes that an accumulation of dirt at the gasket, or possibly the gasket itself broke the contact and allowed the current to arc across and burn the union.

Superintendent Walter Turner of Cambridge, Ohio, feels that towns his size cannot afford to own thawing equipment. He employs local welders to do the job when necessary. However, this method is not entirely satisfactory because of the fire risk. Several fires have started this way when current was forced through mechanical couplings that he finds are poor conductors of electricity causing a short circuit through gas pipes.

He has found it a good policy, when possible, to call on the same crews that laid the main or service that has frozen, and assign them to the job of lowering it. This puts uppermost in everybody's mind the need for adequate cover. Some hold to the theory that a concrete, brick, or asphalt surfacing protects the ground against frost penetration. His experience has been otherwise. He finds that frost penetrates far deeper under these surfacings.

For frozen mains, Superintendent Howard Greene of Marquette, Mich., uses a 50-kva transformer, 2,400 volts, tapped for 100 volts or less, mounted on a trailer. For thawing small service lines, he uses a 5-kva transformer. He has very little trouble with mains, laid at a depth of 5½ feet, but has plenty of calls from customers with frozen services, laid at all depths.

The policy of water utilities on thawing services requires some attention. Almost all will respond to a customer's plea for help even though service is not laid at a depth that is recommended. Only three cities—Cedar Rapids, Iowa; Fremont, Nebr., and Winona, Minn., disclaim any responsibility when the pipes are installed by plumbers. Some, as does Manchester, N. H., make a charge for the work. Manchester's charge is $5 for the first hour and $2.50 for each hour thereafter. Marquette, Mich., answers free of charge the first call for thawing the service line from the street shut-off to the dwelling. Thereafter a charge of $5 is made.

Pipe-thawing equipment has much in common with the soldier's foxhole. The beloved Ernie Pyle once wrote how pleased one was to dig a foxhole, and how much more pleased he would be if the labor of digging it were a total waste of effort.

Similarly, a city's water department looks with great satisfaction on a win-

ter warm enough to make thawing equipment wholly unnecessary, but it still is comforting to have that equipment in the shop "just in case."

One of the manufacturers warns that some danger exists when using a welding generator for pipe-thawing work. Welding generators are designed for intermittent duty; the welding load is not constant but is on and off, depending on whether the operator is actually holding a welding arc. Pipe thawing is a continuous load duty for which welders are not specifically designed. If a welder is operated above its rated load on a continuous load duty, there is a real danger of its becoming overheated and catching fire.

This manufacturer feels that a d.c. welder, NEMA rated at 300 amperes at 40 volts or 12 kilowatts, should not be used for any continuous load greater than 9.6 kilowatts and not more than 240 amperes. This precaution applies to machines with a duty cycle of at least 60%. Machines with lower load-factor ratings must be operated at still lower percentages of the rated load.

In operating the welder for pipe thawing, the voltage should be set at minimum and the amperage at a setting to produce the proper current. Turning the voltage low helps to prevent undue temperature rises.

TYPES OF EQUIPMENT USED BY VARIOUS CITIES FOR THAWING WATER LINES

City	*Population*	*Equipment*	*Superintendent*
Anderson, Ind.	41,572	electric thawer	W. Branch
Bay City, Mich.	47,956	1 P & H welder, 400 amp; 1 50-kva transformer, 2,200/55 V	L. B. Harrison
Beatrice, Nebr.	10,853	110-220-V electric thawer; 2 25-kva transformers hooked to 2,300-V primary	R. I. Case
Bloomington, Ill.	32,868	400-amp gas-engine generator, truck-mounted	C. C. Williams
Champaign, Ill. and Urbana, Ill.	23,302 14,064	400-amp Lincoln welder	F. C. Amsbary, Jr.
Connersville, Ind.	12,898	electric welder	James West
East Chicago, Ind.	54,637	400-amp Hobart welder	A. G. Vinick
Evansville, Ind.	97,062	electric thawer	L. A. Geupel
Faribault, Minn.	14,527	electric thawer, steam thawer	G. La Roche
Ft. Wayne, Ind.	118,410	2 Hauck 20-gallon steamers; 1 400-amp welder	J. O'Connor
Grand Island, Nebr.	19,130	electric thawer, transformers	C. W. Burdick
Grand Rapids, Mich.	164,292	electric welder	J. DeKorne
Green Bay, Wis.	46,235	Engesser electric thawer	H. Londo
Hastings, Nebr.	15,145	welder, transformer	A. S. Reiff
Huron, S. Dak.	11,146	300-amp electric transformer	W. Johnson
Idaho Falls, Idaho	15,024	3 electric thawers	W. J. Rushton
Kalamazoo, Mich.	54,097	one 600-amp. gas-engine generator on a trailer; 2 AC transformers	A. Sabo
Lancaster, Ohio	21,940	2,200/110-V transformers	E. D. Deeds
Logansport, Ind.	26,000	two 2,400/120-V electric transformers	R. E. Price
Manhattan, Kans.	12,868	welder	B. Van Blarcum
Marquette, Mich.	15,928	trailer-mounted transformer, 50 kva for mains; 5 kva for services	H. W. Greene
Michigan City, Mich.	26,476	Hobart 500-amp thawer	H. J. Draves
Minneapolis, Minn.	492,370	electric thawer	E. W. Johnson
Mishawaka, Ind.	28,298	110/220 transformers	A. R. Klein
New Philadelphia, Ohio	12,328	300-amp Hobart welder	H. Kerr
Niles, Mich.	11,328	two 55-V transformers in series on a trailer	R. Robinson
Niles, Ohio	16,273	Hobart welder	B. Holloway
North Platte, Nebr.	12,429	Darley electric thawer	L. Goble
Painesville, Ohio	16,000	50-kva, 2,400/60-120-V transformers	N. D. Elliott
Piqua, Ohio	16,049	Hobart welder	F. G. Hickey
Racine, Wis.	67,195	Engesser electric generator	W. A. Peirce
Rockford, Ill.	84,637	220-V transformers	H. S. Merz
St. Paul, Minn.	287,736	2 electric generators, truck-mounted	L. Thompson
Salt Lake City, Utah	210,000	Hobart welder 1-400 amp, 1-300 amp	Dow H. Young
Sioux City, Iowa	82,364	Hobart 400-amp welder	D. Fletcher
Sioux Falls, S. Dak.	42,343	electric thawer	R. Rees
Superior, Wis.	35,136	220-110-V, 44/22-V transformers	H. Underhill
Tacoma, Wash.	139,000	five 115 or 230 double-throw switch transformers with damaged high-tension cores rewound for thawing	W. A. Kunigk
Traverse City, Mich.	14,455	transformers, 300-amp Hobart trailer-mounted electric welder	A. Eikey
Toledo, Ohio	282,349	2 welders for mains, 2 steamers for hydrants	G. Van Dorf
Topeka, Kans.	76,590	Hobart welders, 500-amp 16-V, 1,000-amp 8-V	L. B. Smith
Virginia, Minn.	12,264	Hobart welder	C. Blasing
Walla Walla, Wash.	18,109	welder	R. F. McLean
Watertown, S. Dak.	10,984	75-kva transformers	C. Sonnenberg
Waukesha, Wis.	19,242	Engesser electric thawer	A. P. Kurasz
Whiting, Ind.	10,307	Darley electric thawer	S. J. Dado, Jr.
Wisconsin Rapids, Wis.	11,416	Hauck steam thawer and transformer	F. L. Steib

CITIES RENTING EQUIPMENT

City	*Population*	*Practice*	*Superintendent*
Cuyahoga Falls, Ohio	20,546	rents welders; lowers all frozen lines	L. F. Cook
Dearborn, Mich.	63,584	power company called to do the work	J. McCallion
Duluth, Minn.	101,065	rents welders	H. G. Tischer
Goshen, Ind.	14,500	rents welders at $5 per assignment	Merle J. Miller
Lima, Ohio	44,711	rents welders	E. E. Smith
Madison, Wis.	67,447	local welders do work at $7.50 per assignment	L. A. Smith
Mattoon, Ill.	15,827	rents welders	K. J. Fuss
Pocatello, Idaho	18,133	rents welders	W. J. Spier
Quincy, Ill.	40,469	rents welders	R. Gelston
Saginaw, Mich.	82,794	hires power company crew	J. Richardson
Sheboygan, Wis.	40,638	hires power company crew	J. Zufelt

Words Some Engineers Use Incorrectly

CERTAIN words stick in the engineer's lexicon for no good reason at all. Some, like the surveyor's "chain," meaning steel tape, sentimentally stay to remind him of those romantic days when his forebears went out into the wilderness and tried unsuccessfully to settle boundary disputes between pioneer landowners. Those oldtimers actually used a light steel chain to make their measurements, and consequently called it that. Had they had a steel tape, they would have called it a tape. But chain it is today, and chain it will remain for generations of engineer-surveyors to come.

Some words that the engineer uses are just plain wrong. For instance, the sanitary engineer constantly refers to the trickling "filter." Yet anyone with even the most elementary concept of sewage treatment knows that it is not nor is it supposed to be a filter. However, some sanitary engineers will cling to this farce with the stubbornness of the crab who will lose a claw rather than release its grip.

Some words actually confuse the issue. For instance, consider the term, "water consumption." For more years than most of us would like to remember, the sanitary engineer has used the rule-of-thumb of 100 gallons per capita per day and called this "water consumption." Were one to place a 100-gallon tank of water beside the sanitary engineer and to tell him to "consume" it in a day, he might revise his terminology. Yet we find the phrase used even in meticulous reports by such authoritative groups as the American Society of Civil Engineers. One, recently published, stated that, "The increase in domestic consumption was expected." Offhand, one might feel that the report dealt with tuberculosis.

Obviously water is not consumed. A little is used for drinking, a little is used for cooking; some is used seasonally for sprinkling lawns; the bulk is used to flush the filth out of our homes.

If a locomotive, at the end of its run, goes to the roundhouse for repairs, it has not been "consumed." Neither has a bus been "consumed" when it goes to the shops after a long run. In both cases, it has been used, just as water has been used when it passes through our homes and industries and goes to the sewage-treatment plant so that it can be "repaired" and used again. Consequently, we ought to say "water use" because that is what it is.

Those words that are wrong, but which remain with us for sentimental reasons, we can tolerate. But those that give a misleading picture of what actually happens ought to be replaced.

How the Rockford Fire Department Got Radio

By WAYNE E. SWANSON
Fire Marshal
Rockford, Ill.

THE City of Rockford, Ill. (population 117,000), is a highly industrial city and ranks second in the nation in the manufacture of small tools. Our fire problems are on the increase, and our fire department, like every other fire department, just isn't keeping stride with the city's growth. I have attended a lot of conventions and conferences and have listened to experts tell of new improvements and methods, but not one tells how and where you might get the money to put the same into operation.

I know other fire chiefs have this problem, and at the 1949 instructors' conference in Memphis I explained how radio communication was won by our department.

In January 1947, a local taxicab company invested about $40,000 in the installation of two-way FM radio. I was invited by the manager to inspect its operation and was sold on radio right there. I could see the Rockford Fire Department, in my own mind, operating the same way.

Seeks Budget Committee Approval

That year I had asked the City Council for an additional hook-and-ladder company, which would have increased our budget at least $35,000 and which was urgently needed. My budget had been submitted before I saw this radio system of the taxicab company, but I immediately secured prices for the installation of radio in our department.

I received my audience with the Budget Committee, and started going over each item requested for the Fire Department. When they came to the item of the additional hook-and-ladder company, they threw their hands in the air and immediately ran the red pencil through this proposal.

I tried to explain the necessity of the increased territory that was being serviced by the department, the additional population, and increase of manufacturing.

When I saw that wasn't going to get this item, I said, "Gentlemen, I have a proposition that isn't going to cost very much. I think that we can get more use out of the equipment we now have, give the City of Rockford better fire protection, and be just a little more efficient."

I explained the operation of a radio system, and told them that I could secure a 50-watt central station and antenna, and equip three chiefs' cars and two hook-and-ladder trucks for about $5,500. This would give us a start in FM two-way radio. I came out of the Budget Committee meeting with radio, as well as a few additional items.

The next step was to advertise for bids, and then came the question of tying up with the Police Department radio system. We were tied up with the police on the old AM with our chiefs' cars, but this was not too successful. They took care of their calls first and if they had time, they would take care of ours. I say this because radio communication is not successful unless police and fire are on separate frequencies. Usually, in case of emergency, police and fire departments are both busy and then the question arises as to which is to have priority on the air lanes.

My first step in this matter was to see the Chief of the Police Department, and we talked this matter over. He called in his radio technician and told him he thought that the most efficient proposition was for the Fire Department to have its own station and wave length. When the committee asked the police and fire radio technicians about this matter, they both agreed that this was the proper installation. We have in our department a captain who holds a first-class radio license, and who is in charge of our fire-alarm office. He has been responsible for the installation and maintenance of our system.

The purchasing committee gave us the "go" sign on the erection of the radio, so we applied to the FCC for our wave length and construction permit. We were given these, and when our construction permit came, we were assigned to 154.19.

Within thirty days we had installations made and were on the air, broadcasting from Station WROF.

The next step taken by our department was to sell the radio system to the aldermen and the taxpayers. Every time something unusual happened in our operations, we saw to it that the newspapers got the story, which, incidentally, they thought were good news items. We took the Mayor and the aldermen out in the chiefs' cars and the apparatus, and they marveled at the operation of the system.

The next budget for the Fire Department was submitted in January of 1948, and it was easy to get $10,000 for the complete installation of radio in our Fire Department. Our system comprises one 50-watt RCA main-station transmitter, seven RCA mobile units and eight General Electric mobile units. During 1948, we made 28,892 radio transmissions.

In conclusion, I am of the opinion that besides keeping abreast with the fire-fighting and personnel problems, you must be a public relations man and a good salesman in order to be a successful fire chief.

$100,000,000 for Public Works Planning

THE bill authorizing $100,000,000 in federal loans for advance planning of public works was signed on October 13 by President Truman. The new law authorizes the Administrator of General Services to make advances for a two-year period to the states, their agencies, and political subdivisions "to aid in financing the cost of architectural, engineering, and economic investigations and studies, surveys, designs, plans, working drawings, specifications, procedures, and other action preliminary to the construction of public works (exclusive of housing). . . ."

Loans will go to states 75% on the basis of their population and 25% on the basis of their needs. No advances are to be made unless projects conform to an over-all state, local, or regional plan approved by a competent state, local, or regional authority. Congress provided $25,000,000 for advances this fiscal year.

The loans will not bear interest, but must be repaid when and if construction of the public works is started. If that doesn't happen within three years, the Federal Government can demand repayment.

The law is designed to encourage public agencies to maintain a continuing and adequate reserve of fully planned public works readily available for use, to permit the immediate commencement of construction when the economic situation may make such action desirable. The law will also enable the planning and construction of needed federal public works to be adapted to the particular public works objectives of local agencies.

Professor Hauf Assumes Architectural Editorship

PROFESSOR HAROLD D. HAUF has resigned his position as Chairman of the Department of Architecture at Yale University, and became, on September 1, Editor-in-Chief of *The Architectural Record*.

An expert in the field of architectural engineering, Mr. Hauf has served as consultant in structural design for numerous private and public construction projects, and is the author of the book, "Design of Steel Buildings," now in its third printing.

Chillicothe's Master Plan Gets Action

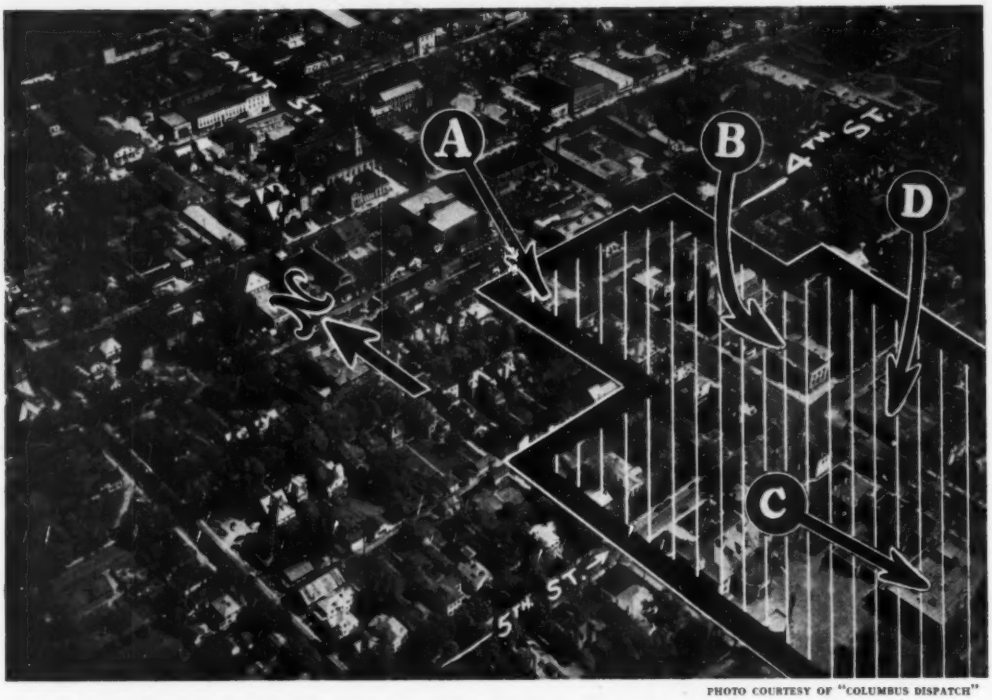
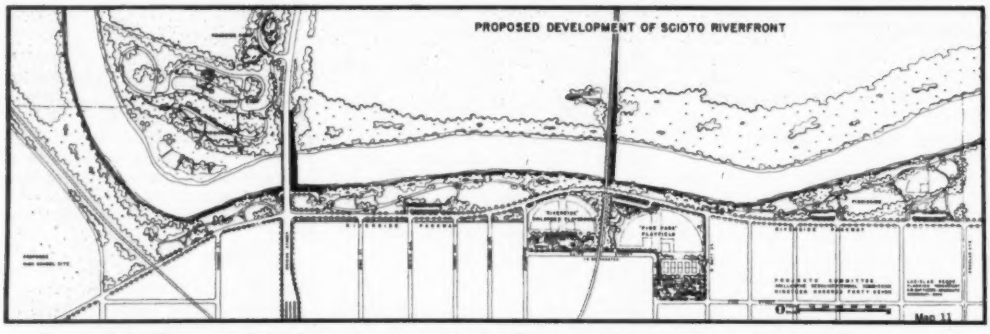


PHOTO COURTESY OF "COLUMBUS DISPATCH"

Aerial photo of Chillicothe, showing part of area in proposed building group and relation to the business section as follows: (A) City Hall; (B) Federal Building and Post Office; (C) Elementary School, and (D) Library and Museum

By C. W. MATTHEWS
Principal Associate
Ladislas Segoe and Associates
Cincinnati, Ohio

CHILLICOTHE, the first capital of Ohio (1940 population, 20,129), has specific plans for preserving its early charm and improving its general appearance and attractiveness. Despite an abundance of natural and man-made beauty, the city has not been content to rest upon its laurels as a comfortable county seat and trading center for a rich agricultural area. It is bustling with industry: Mead Corporation (paper); Chillicothe Paper Company; U. S. Shoe Corporation; Baltimore and Ohio Railroad shops; Aluminum Company of America, and others. A veterans' hospital and a federal reformatory are located just outside the city limits. However, the residents are not only interested in expanding industrial, trade, and service activities, and in modernizing the municipal plant, but are desirous of protecting areas of architectural charm



Proposed development of the Scioto riverfront, showing how it can be designed for both beauty and utility.

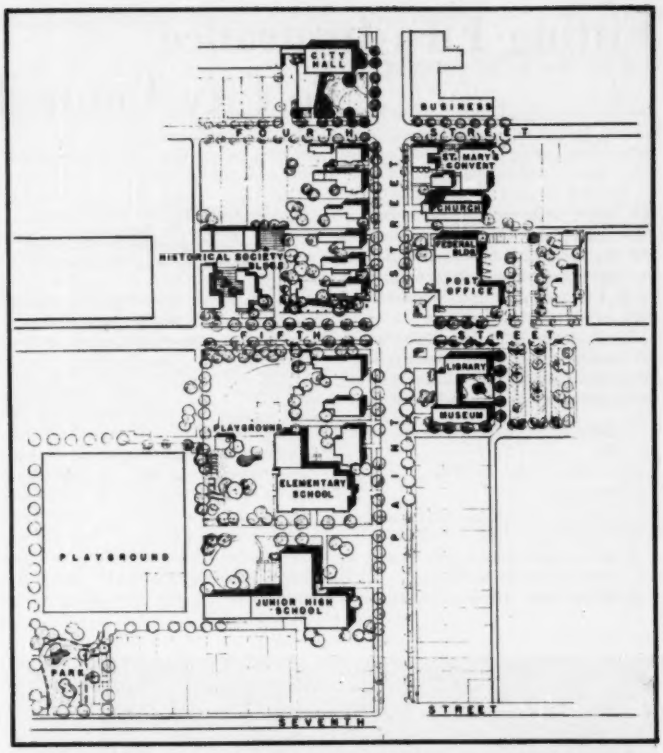
and preserving and improving sections of natural attractiveness.

When the city decided to celebrate its Sesquicentennial in 1946, the Projects Committee of the Sesquicentennial Commission selected as a project of continuing value to the community the preparation of a comprehensive master plan. This project, carried out during 1947 and 1948, was financed in most part by local industries.

The section of the Plan concerning the city's general appearance goes deeper than the conventional controlling of signs, street appurtenances, etc. It seeks to preserve sections of exceptional attractiveness or historical significance, and to improve areas of natural beauty. It covers the design of a sparsely developed outlying residential section, sets forth the purpose of reclaiming abandoned canal lands, proposes appropriate development of the riverfront, recommends a grouping of historical, cultural and administrative buildings, and urges continued high standards of industrial plant design.

Part of the riverfront along the Scioto was designed for both beauty and utility, coordinated with plans of the Sandusky-Scioto Conservancy District. A scenic parkway along the river is recommended — this on a levee protecting adjoining areas against overflow during flood. Strategically located, badly needed recreational features are incorporated in the design.

The section south of the downtown district, containing loosely grouped public and historical buildings, has been consolidated into a unified group including a new city hall, an enlarged federal building and post office, an expanded school plant, a new library, and an art museum.



Proposed grouping of public and historical buildings recommended in the Plan.

Projects Are Under Way

Chillicothe not only is "planning" for the future, but already is carrying out recommendations of the Plan—within months after its adoption and publication. Two new schools, authorized by bond election, are to be built—at a saving in site costs alone of many times the cost of the entire Plan. One of these is an elementary school. It will be on the site of the high school, which later will be converted into a junior high school when the high school is relocated to the central site recommended by the Plan. The other school (also elementary) is to be on a new site better located with respect to its attendance district than the present obsolete building which is situated at the intersection of two heavy-traffic streets. The latter site is proposed to be used in part for a badly needed new central fire station, and the balance sold for commercial use—the sale to more than offset the cost of the new and better site. As a by-product, the city will gain an ideally located fire-station site.

Good progress has been made toward the permanent recovery of canal lands —to be utilized, in part, as necessary links in the street system. The local routing proposed in the Plan for important U. S. Route 23, originally opposed by state highway officials, now is considered the most desirable of several alternatives, and early construction is anticipated when funds for the city's share of the cost are raised.

Thus, the city of Chillicothe, in preserving its heritage, is moving forward to an even better era—improving its appearance while absorbing new industry and extending and modernizing its municipal plant to service new establishments and its expanding population —to make the city a more attractive, convenient, and livable community.

Municipal Marina Facilities Expanded in Florida

KEYNOTING a widespread increase in boating facilities throughout Florida, new municipal marinas at Daytona Beach and Fort Lauderdale will soon open on the intra-coastal waterway, over which more than 2,000 large recreational craft passed en route to warmer climes in 1948. In addition, smaller, privately owned yacht basins have been opened on both the east and west coasts of the state, and the Miami Research Bureau has announced that waterfront improvement projects, either proposed or currently under way, will increase docking facilities around Miami nearly 30%.

The $380,000 Daytona Beach Marina, built into an L-shaped key with fill dredged from the bottom of the Halifax River, contains three modern finger piers, providing water, fuel, and electricity for 200 craft of varying sizes. Besides offering skippers convenient access to near-by shopping centers, the new basin includes a dockside laundry installed for the convenience of transient craft owners. A series of culverts, built under the fill surrounding the marina, assures a regular change of water within the basin.

Bahia-Mar, Fort Lauderdale's municipal marina, which will open officially on December 1, was constructed at a cost of $2,500,000. Built on a 27-acre tract of land with 2,400 feet of ocean and lagoon frontage, the basin will accommodate 500 recreational craft. In addition to a restaurant with outdoor dining and dancing patio, Bahia-Mar includes a 28-store shopping center, a cabana club, and a parking area for 650 automobiles.

Fitting Fire Insurance To City Council Responsibility

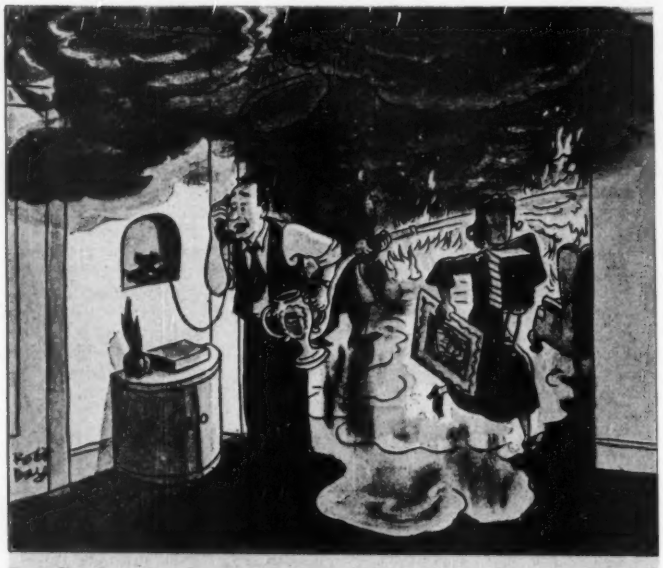
By GEORGE H. DEMING
Executive Secretary
Bureau of Government Research
University of New Hampshire

WHEN a city council takes office, it immediately becomes responsible for the protection of the property of the municipality, and thus for seeing to it that an adequate fire-insurance program is carried out.

The first step is to determine exactly the properties for which the city is responsible. The schedule will include the following information:

1. Name of the building and code number
2. Location of the building
3. Occupancy
4. Construction—(frame, brick, concrete, etc.)
5. Size—(cubic footage, with number of stories, floor space, etc.)
6. Value—(cost when built, value at most recent valuation, with date of most recent valuation)
7. Contents—description, value, etc.

Up-to-date values are of the utmost importance, as it is only with knowledge of true value that intelligent decisions can be made regarding the amount of insurance that should be carried. A town hall built in 1932 at a cost of $25,000 might very well cost $50,000 to replace today. Who shall set the valuation? In 21 New Hampshire municipalities it is the local municipal officials, in three it is the insurance agency, one hires an assessing firm, and one reports that evaluation is done by both local officials and the insuring firm. Possibly the best way is to have competent local officials or private citizens survey the property, assisted by an engineer from the insuring agency.



". . . I'm fine, Chet, how are you? . . . Good, good . . . Say, Chet, I've been thinking over our conversation in my office the other day and, I don't know, maybe you have something . . . The wife and I have been talking it over—oh, Sheila's fine, Chet. She's sitting here buried, ha-ha, in one of those whodunits of hers . . . Anyway, Chet, we thought it over and, after all, no question but that the replacement value of the place has gone up since we took out that policy back in 'Forty-one . . . Yep, yep. You're right, Chet . . . Suppose we go ahead then . . . Oh, I don't know—an extra five thousand or so . . . Right, right . . . Tell you what, Chet—I'll put a check for a hundred in the mail tonight, and you can shoot back my change . . . No trouble, no trouble . . . If we're going ahead with it we might as well be covered right away . . . That's right, ha-ha, never can tell, ha-ha-ha . . ."

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To Maintain Values

The important thing is not *who* shall do the job, but rather that *someone* shall take the responsibility for seeing that accurate, up-to-date values are maintained. Remember, over-valuation will cost the municipality money in the form of over-insurance, and under-valuation may cost even more in the form of unprotected losses.

The next step in the insurance program is to determine *how much* insurance to carry. Below are the usual choices.

1. *Full Coverage.*—The property is insured at its full insurable value. In case of total loss by fire, the municipality recovers the full amount. This coverage may cost more because of the greater amount of insurance. It may be unnecessary in many instances where the risk can be carefully evaluated.

2. *Partial Coverage.*—In case of loss, the municipality is protected up to the amount of the policy. For example, in the case of the $50,000 town hall, the official may feel that (a) because of construction, location, etc., it would be unlikely for fire to destroy the building, or (b) full coverage is too expensive, and this $50,000 building is insured for $25,000, at a flat rate. In the event of a fire, the municipality can collect only up to $25,000, the face value of the policy. The rate per $100 of insurance is generally higher than the rate for full coverage with co-insurance. Therefore, it is well to compare the actual costs of full and partial coverage.

3. *Self-insurance.*—Under this system, the municipality carries its own insurance and pays its own losses from a fund established for that purpose. It is extremely important that the fund be held inviolate, and not be used for other purposes.

4. *No Insurance.*—This plan establishes no fund and pays for losses out of the general fund. This procedure is extremely hazardous, except in the very largest cities.

5. *Co-Insurance.*—Under the co-in-

surance clause the insured is required to carry a stipulated percentage (usually 80%) of the insurable value of the property. The required amount of insurance makes the municipality liable for a percentage loss in proportion to the difference between what it agreed to carry and what it was actually carrying.

The final consideration is that municipal property belongs to the taxpayers, for whom the officials are merely acting as agents. Risks which one might take with one's own property cannot properly be taken under these conditions, and a sound insurance program for the community is also good insurance for the responsible official.

The choice of the servicing agency should be made before the appraisal in order to take advantage of the services offered by the agency in evaluation, advice as to coverage, suggestions for reducing rates, etc. Two factors are important:

1. Since rates in New Hampshire are established by the Board of Underwriters and consequently there can be no competitive bidding in prices, the amount of service an agency offers will be an influencing factor.

2. Service being equal, municipalities usually try to purchase their insurance from local businessmen. Where several local agencies give comparable services, many municipalities allow one to do the servicing, and divide the commission among all the local agencies.

Purchasing Insurance

The question of purchasing from mutual or stock companies is one which must be answered by the individual municipality. Since all mutual companies doing business in New Hampsire are unassessable, there is little or no risk involved. There is the advantage of sharing in any profits which the company may realize. On the other hand, the amount of insurance that a mutual company will underwrite on one risk or one combined group of risks is limited. Consequently, there may be some advantage in placing all the insurance in one stock company rather than splitting it among several mutuals.

The municipal official handling the insurance program will save himself much time and effort if he maintains adequate records of the following:

1. Numbers of the policies covering the building and contents
2. Face value of each policy
3. Premium of each policy
4. Date of issuance of each policy
5. Date of expiration of each policy
6. Name of the insurance company
7. Name, address, and telephone number of the agent.

Exemption and Preferential Taxation of Factories

IN 17 states and Alaska, there is some industrial property which is either exempted or accorded preferential tax treatment, according to the September 1949 issue of *Assessors' News Letter*, published by the National Association of Assessing Officers, 1313 E. 60th St., Chicago 37, Ill.

In nine states and Alaska, only real property is exempt; in five, only personal property is preferentially taxed; and in three others real property is exempt, while personal property is preferentially taxed. All states exempting industrial real property place a time limit on the grant, usually five or ten years. In Maryland and Florida, special acts have been passed permitting certain jurisdictions to exempt industrial property for varying periods of time. The Alaska exemption may be granted for a period not to exceed ten years. The laws of most of these states are permissive only and allow a state agency, such as an industrial commission or local governing bodies, to exempt the property of specific manufacturers from state and/or local taxation.

Few changes have been made in the last decade to the laws pertaining to industrial exemption, the *News Letter* declares.

Effect of Local Taxes On Location of Industry

MANUFACTURERS seldom save money by locating their plants outside city limits to escape municipal taxes, according to a survey of the experiences of 40 representative cities in annexing areas with large industrial plants.

In a report, "Annexation of Industrial Areas by Cities," published last month by the American Municipal Association and the American Society of Planning Officials, the Associations pointed out that municipal taxes are generally only a small fraction of the state and federal taxes which are applicable uniformly whether the industry is located within or without the city.

In replying to the questionnaire, Atlanta gave comparable figures which showed that industries outside the city pay approximately 12% more than those inside the city, if the cost of water at double the city rate is included. Los Angeles pointed out that although taxes in unincorporated areas are usually lower than those of the incorporated areas in Los Angeles County, plants located in such unincorporated areas frequently fall within special taxing districts, such as sanitation, fire protection, school, etc. Thus, total taxes in unincorporated areas may be as high as those of incorporated places.

Milwaukee indicated that many town tax rates are far higher than those prevailing in the City of Milwaukee, "when towns maintain expensive schools and attempt to compete in services rendered by Milwaukee." It was also pointed out that some outlying towns failed to supply essential services to residents, although they did to industries, and that thus they were able to levy a lower tax than that of Milwaukee.

Denver and Minneapolis reported that taxes were approximately the same inside and outside the city boundaries. Spokane stated that the taxes outside the city varied with location, but that some taxes were higher. Scranton replied that the tax millages of municipalities surrounding Scranton are higher than in the city. Richmond, Va., on the other hand, indicated that the county assessments and rates are much less than those of the city, while Chicago stated that, in general, property taxes are about $1 per $100 less in the unincorporated area than in Chicago.

Eleven of the cities queried by the Associations stated that annexation including industry had taken place during the last 20 years. These cities are Columbus, Dallas, Fort Worth, Memphis, Toledo, Louisville, Richmond, Va., Los Angeles, San Antonio, Oklahoma City, and Milwaukee.

Correction

Through an inadvertent error, the figures concerning Norfolk's redevelopment program which appeared on page 159 of our October issue were incorrect. Norfolk's initial application for redevelopment funds contains plans for a $5,000,000 loan and a $3,800,000 grant. The city's contribution in streets, utilities, and facilities is expected to amount to $1,900,000.

Redevelopment Progress and Problems Revealed in Recent Publications

SEVERAL substantial articles and guides for local officials and redevelopment agencies interested in making sound progress under the Slum Clearance and Community Development and Redevelopment section of the Housing Act of 1949 have recently been published. They reveal frankly the nature of the problems which will be faced, and report on the administrative organization and progress made by agencies established thus far.

Administrative Problems in Federal Aid for Urban Development and Redevelopment, by Coleman Woodbury and William L. Slayton, is a well-edited report of the second "1313" Conference on Urban Redevelopment held at Chicago in July of this year.[1] Sponsored by the Public Administration Clearing House, the participants included representatives of most of the agencies that are furthest advanced in planning for redevelopment, as well as a number of other public and private authorities in the field, including Nathaniel S. Keith, the newly named administrator of Title I of the Housing Act.

The purposes of the conference were to point up clearly the provisions of Title I that deal with intergovernmental relations and that also call for administrative discretion and interpretation, and to reach, if possible, a consensus of the main features of administrative policy on these points. During the two and one-half days of Conference discussion, consensus was reached on a number of central issues, although differences of opinion and interpretation on several important points were not reconciled. The summary report reviews the areas of agreement, and also states the differences, where found, as a guide to others.

* * * * *

An article, "Relocating Negroes from Urban Slum Clearance Sites," by George B. Nesbitt, gives informative and thoughtful coverage of that subject in *Land Economics* for August 1949.[2] The article reviews experiences in this field, gives factual material about the scope of the problem, and declares that Negro relocation is now a monkey wrench in the machinery of redevelopment.

"If the relocation lags," the article points out, "the progress, perhaps even the feasibility, of parts or the whole of the redevelopment program is jeopardized."

The position of Negro and other minority groups on urban redevelopment programs is made clear in the article, and specific recommendations are outlined as to what municipal governments can do in answer to the problem of relocating Negro families. The article concludes with the statement that if redevelopment of Negro-occupied slums is to take place, we must begin in the relocation effort to undo the pattern of residential segregation. Otherwise no substantial degree of accomplishment in accord with the democratic process can be expected.

A report, summarizing the structure and activities of the separate urban redevelopment agencies established by municipalities fortunate enough to be enabled by state legislation to deal with redevelopment problems in this way, has been distributed as Information Report No. 4 to subscribers for the Planning Advisory Service of the American Society of Planning Officials.[3] The report includes information on funds available, redevelopment proposals, budgets, staffs, and legislative authorizations.

[1] *Administrative Problems in Federal Aid for Urban Development and Redevelopment*, by Coleman Woodbury and William L. Slayton. Summary Report of Second 1313 Conference on Urban Redevelopment. Public Administration Clearing House, 1313 E. 60th St., Chicago 37, Ill. October 1949. Mimeo. 37 pp. Conclusions of the First 1313 Conference on Urban Redevelopment are contained in *Re-Thinking Urban Redevelopment* by Coleman Woodbury and Frederick A. Gutheim, published by the Public Administration Service earlier this year.

[2] "Relocating Negroes from Urban Slum Clearance Sites," by George B. Nesbitt. Article in August 1949 issue of *Land Economics*, pp. 275-288. Published at Sterling Hall, University of Wisconsin, Madison 6, Wis. $1.50 a copy.

[3] *Urban Redevelopment Agencies*. Information Report No. 4, July 1949. Mimeo. 17 pp. Available only to subscribers of Planning Advisory Service, American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill.

Colorful Slides Available on Roadside Control

AN EXCELLENT and highly effective set of Kodachrome slides, entitled "Protecting Our Highways from the Roadside Blight," has been prepared by the National Roadside Council for use by planning commissions and other groups seeking to educate the people on the need of roadside control and on the value of rural zoning.

The slides are 35 mm., 2 inches square, and are cardboard-mounted. The price of the set and a legend to accompany it is $25. It can be obtained from the Council at 119 East 19th St., New York 3, N. Y.

The slides illustrate how arterial highways have degenerated into ribbon business streets, point out how freeway construction is the most effective cure for the blight, and include an extensive section on county zoning, what it is and what it does. The concluding section contains views of a few protected highways in various states, including the Taconic Parkway in New York State, protected from business by controlled access, and protected from billboards by a state law prohibiting signs within 500 feet of state parks and parkways, and the Maine Turnpike, first freeway in that state, which has been protected from billboards by a state law also prohibiting all advertising signs within 500 feet.

Maine is the only state that has yet taken action specifically to protect its freeways from billboards. Contrasting views are also shown of the California Freeway on U. S. 101, which in some areas has no protection whatever against signs.

The legend prepared by the National Roadside Council then points out that in more than half of the states authorizing freeway construction, the law, by its definition of a freeway, gives the state power to control the rights of visibility as well as the right of access.

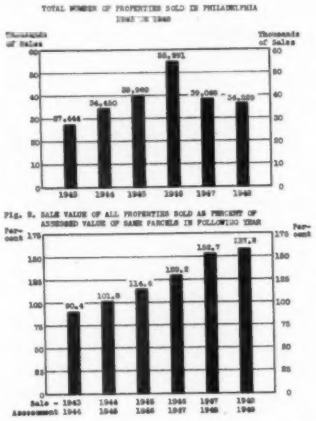
"How can we justify the costly construction of freeways to promote safety, the banishing of business to promote safety, and then allow the billboards to cover the hillsides, each board a distraction of the driver's attention?" the Council asks.

Assessed Values Lag Behind Real Estate Sales Values

IN A study made public by the Philadelphia City Planning Commission on October 1, it was disclosed that since the post-war boom in real estate began, property owners have been paying a proportionately lower real-estate tax than in previous years. Edward Hopkinson, Jr., Chairman of the Commission, announced that an increased ratio of sales prices to assessments which developed during the years 1943 to 1948 resulted in the relatively lower tax. In other words, assessment increases have not kept pace with the rise in sale prices.

The study, as indicated in the accompanying graph, shows that in 1943 the actual sales price of all real estate sold was below the assessment, but in 1948 the sale price exceeded the assessment by more than 50%. The figures given for the ratio of sale price to assessment are 90.4% in 1943 and 157.8% in 1948.

The Commission's report does not propose to offer the solution to the assessments vs. sales problem. But it does pose a problem of equitable adjustment between assessments and sales prices which merits more consideration than it is currently receiving in most cities.



Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.

Residence Districts — Schools and Summer Camps

CONNECTICUT. *Langbien* v. *Board of Zoning Appeals of Town of Milford*, 67 Atlantic (2d) 5 (Connecticut Supreme Court of Errors, June 14, 1949).

IN THIS case, in 1947 several teachers from New Haven planned to operate a day school or camp, for children five to fourteen, in a residential area in Milford during the summer months. Under the proposed scheme, children from New Haven, West Haven and Hamden would be brought by bus to Milford five days a week, and the program would emphasize swimming and other outdoor sports, various arts and crafts, story-telling, and free play. In the promotional literature the description of the venture was changed from a camp to a school, perhaps because the regulations for the particular residence zone permitted schools but made no mention of camps. The issuance of a certificate of occupancy was opposed by the neighboring property owners, but upheld by the Board of Zoning Appeals and finally by the courts—in 1949.

In deciding that the projected enterprise was a school, the Court first noted that residential zoning regulations normally permit a number of non-residential uses which are both appropriate and useful in a residential environment. The Court pointed out that the name given to a particular use was relatively unimportant, and that the proper test emphasizes the type of activities carried on in the premises. The Court then held that, "under the broad modern concept of education," this establishment should be considered as a school.

"Bertcroft's activities are not entirely confined to physical education but they emphasize that feature. Health instruction and physical education are required subjects in Connecticut public schools [citing statutes]. As is indicated in Funk & Wagnall's definition, education is no longer confined to the narrow conception of instruction. The introductory sections of Williams, Physical Education, and Wood and Cassidy, New Physical Education, discuss the broad educational possibilities of the subject treated. The primary aim is undoubtedly improvement in health. Among other results of a properly administered physical education program are training for leadership, obedience, good citizenship, character building, grace, skill, proper coordination, control of temper, and teamwork. In fact, both texts claim that the aims of physical education and general education are the same. Among Websters definitions of a school is 'an establishment for imparting education.'"

This broad interpretation of a "school," for the purpose of residential zoning regulations, is eminently correct. Moreover, if day-camp-schools were excluded from residential districts, it is difficult to see where they could go; a crowded business or an industrial zone would hardly be an appropriate location. However, since such a camp would unquestionably create more noise and bustle than are usually present in a low-density residential area, a strict bulk regulation—requiring a good deal of land around the school—would be proper.

Accessory Garages in Residential Areas

NEW YORK. *City of New Rochelle* v. *Dillon*, 89 New York Supplement (2d) 630 (New Rochelle City Court, June 10, 1949).

In this case the defendant kept a 1949 Ford truck, used for personal and family matters and also for a newspaper business, in the rear garage of a home situated in a Residence 3 zone.* The regulations for that residence zone did not expressly forbid storage of such a vehicle in an accessory garage on a residential lot. The Court reluctantly dismissed the present charge of a zoning violation, with the following remarks:

"There is no question in the mind of the Court that sensible zoning would exclude the presence of commercial vehicles, even though used partially for family purposes, for storage in residential districts. That certainly is the spirit of our Zoning Ordinance. Because, however, there is no express prohibition against such use in a residential district, the Court is compelled to dismiss the charge, and it does so with the recommendation to the City Council that it review carefully the Zoning Ordinance and enact a suitable provision relative to the use of residential property for the storage of motor vehicles of any kind which are used entirely, or only part of the time, for commercial purposes."

This case raises a rather difficult question, for which no pat answer is satisfactory. Clearly a commercial trucking business with large trucks should not be permitted to operate out of an accessory garage in a residential area. Yet occasional commercial use of a half-ton truck would not really do any harm, and a prohibition against keeping such a vehicle would probably be unenforcible in any case. One solution might be to forbid storage of commercial vehicles in such areas, except for small trucks which will only be used incidentally for commercial purposes—thus leaving a good deal of discretion to the building inspector.

* A district permitting one- and two-family detached and semi-detached houses, with required sideyards totaling 14 feet.

Dry Cleaning In Residential District

NEW JERSEY. *Scerbo* v. *Board of Adjustment of Jersey City*, 67 Atlantic (2d) 472 (N. J. Appellate Division, July 22, 1949).

A three-story building, constructed on Hudson Boulevard in Jersey City about 1910, contained four three-room apartments on the two upper floors. In the store space on the ground floor, now vacant, there had been a succession of retail sales and service establishments, including at one point a tailor shop for repairs and hand dry-cleaning of clothes. The building was located in a second residence district, and there were no other stores in the block. The record of the case did not indicate the use of the store at the time the zoning ordinance was adopted, or before it last became vacant. The owners sought permission to alter the premises for use as a dry cleaning establishment with a single machine, measuring 8x8x4 feet and costing about $5,000, and using a non-inflammable cleaning solvent which would not raise the insurance rate. Neighboring property owners objected to a variance permitting extension of the commercial use, and permission for the alterations was refused by the building superintendent, the Board of Adjustment, and the courts.

The opinion is extremely confusing. However, the Court apparently held that the traditional provision allowing continuation of a non-conforming use would not justify a change from hand dry cleaning to the proposed machine dry-cleaning establishment. The Court stated that a non-conforming use, to be permitted to continue, must be the same rather than another use.

The usual zoning provisions permitting continuation of the same—or similar—non-conforming uses have created a good deal of confusion. While in many cases a non-conforming use may be shifted to another of the same general character, there has been no satisfactory definition of the limits of this privilege.

Bureau of Public Roads Shifted Again

THE Bureau of Public Roads, shifted first from the Federal Works Agency to the new General Service Administration, and then to the Department of Commerce, expects few actual changes to result from these shifts. The recent transfer to the Department of Commerce was ordered by President Truman under his reorganization powers, and a Senate attempt to keep the BPR under the GSA failed by a 47 to 40 vote.

The Bureau of Public Roads is expected to keep its own offices a few blocks away from the Department of Commerce, as the Department has no vacant space for it to occupy. The Public Works Committee of the House and Senate expect to continue to be the Congressional contact groups with the BPR.

24" Mono-Cast Centrifugal Pipe, 24" x 8" Tees and 8" Offsets installed as main air line of sewage treatment works.

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The feeling of confidence that exists between the Acipco organization and that great body of men responsible for the development of water and sewage works in these United States is the result of many years of close cooperation. Since the beginning of our Company, Acipco has constantly worked hand in hand with engineers, contractors and superintendents in solving piping problems in their respective fields.

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Refer your next piping job to Acipco and utilize both our extensive manufacturing facilities and our nearly half a century of experience in furnishing pipe and fittings for water works and sewage disposal plants.

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Chicago Minneapolis Cleveland Los Angeles San Francisco Seattle

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Bridges—Responsibility as to Repair and Maintenance of as Between Village and County

In action by village against townships and county for declaration of rights as to responsibility for maintenance and control of road and bridge, held that since county had not complied with statutory procedure in attempting to relinquish control of road and bridge within village limits, county had continuing obligation to maintain and repair bridge and road. *Village of Bangor* v. *Bangor Township et. al.*, 37 N. W. (2d) 666 (Mich., May 18, 1949).

Buses—Jurisdiction Over Fares—Waiver of Franchise Clause by City

Where city granted corporation franchise containing maximum-fare clause and city thereafter passed ordinance permitting corporation to apply to Public Service Commission for increase in fares which was granted, held that city thereby waived franchise provision for maximum fares, and agreements thereafter between city and corporation were ineffectual to deprive commission of regulatory jurisdiction over fares. *City of Rochester* v. *Public Service Commission*, 89 N. Y. S. (2d) 545 (N. Y. App. Div., May 4, 1949).

City Employees—Five Days' Absence Without Leave—Civil Service Rule Accepting as Resignation

Where employee was absent from her duties without leave for over five successive days in violation of Civil Service Commission's rule, held that rule was within commission's rule-making power and employee's absence justified her dismissal. *Griffin* v. *Jersey City*, 66 Atl. (2d) 350 (N. J. Super. Ct., May 31, 1949).

City Employees—Right of City to Recover Over from After Judgment Due to Negligence of

Where injured party obtained judgment from city for damages caused by negligence of city employee while acting in scope of his employment, held that injured party's failure to serve claim on city employee did not impair city's right to be subrogated to right of injured party and hold city employee responsible for amount recovered by injured party from city. *Tyree* v. *City of Los Angeles*, 206 Pac. (2d) 912 (Cal. App., June 3, 1949).

City Officers—Right to Reappointment After Expiration of Fixed Term—Civil Service Act

Where township appointed real-estate director for fixed period of five years and before expiration of term township adopted Civil Service Act, held that township could terminate director's services at end of term without reappointing him since his appointment was not protected as within classified service. *Woodbridge Tp.* v. *Civil Service Commission*, 66 Atl. (2d) 448 (N. J. App. Div., June 3, 1949).

City Attorneys—Fee for Services to Sewerage District—Power of City Council to Allow

In action against city to enjoin payment of special fee to city attorney from proceeds of sewerage district bond issue, held that under statute city council, as governing authority for sewerage district had power to contract with city attorney for legal services in connection with sale of district's bond issue and to pay him fee from proceeds realized therefrom. *First Sewerage District* v. *City Council of City of Lake Charles*, 40 So. (2d) 808 (La., Apr. 25, 1949).

Competitive Bidding—Contracts with Specifications in Alternative—Validity

Where City of Cleveland specifications for airport runway provided in alternative for asphalt or concrete construction and were complete in every respect, and city was required to award contract to lowest bidder, held that award of contract for concrete construction at expense of more than $68,000 greater than bid for asphalt construction was valid. *L. & M. Properties Co., Inc.* v. *Burke*, 86 N. E. (2d) 768 (Ohio, June 22, 1949).

Competitive Bidding—Power of City Agency to Reject All Bids

In action against agency of New York City for order directing award of contract to petitioners held that city agency letting contract was vested by statute with right to reject all bids if deemed in public interest to do so. *Halpern* v. *Hodgkiss*, 89 N. Y. S. (2d) 451 (N. Y. Sup. Ct., N. Y. Co., Mar. 31, 1949).

Gas—Rates Fixed by State Commission—Appeal from by City

Where city appealed from order of State Public Utilities Commission fixing gas rates, held that failure of commission to fix rate of return was of no concern to city as only quesion was as to reasonableness of rates as far as consumers were concerned. *City of Cincinnati* v. *Public Utilities Commission*, 86 N.E. (2d) 10 (Ohio, May 4, 1949).

Health—Markets—Power of City to Make Regulations in Addition to State Law Governing

Where City of Mt. Vernon Health Regulations require interior of all retail chicken markets to be tiled and otherwise constructed to conform with regulations, held that such additional requirements were not in conflict with State Agriculture and Market Law since law does not prohibit city from making such additional regulations as may be reasonable. *People* v. *Capriulo*, 89 N. Y. S. (2d) 531 (N. Y. Spec. Sess., Mt. Vernon, May 25, 1949).

Income Tax—Validity of Ordinance Taxing Wage Earners and Businesses On Different Scale

Where city ordinance imposed income tax on gross income of wage earners and only on net profits of businesses and professions, held that ordinance was not discriminatory, unjust, and contrary to public policy since all those of given class were similarly affected. *Stockwell* v. *City of Columbus*, 86 N. E. (2d) 822 (Ohio Ct. of Com. Pleas, Franklin Co., May 23, 1949).

Labor Unions—Right of Union to Attack Ordinance

Where union and members attacked validity of ordinance which prohibited places which serve food or drink from allowing musicians to play therein unless places were specially licensed, but for 12 years no application for permit had been made and there was no proof that ordinances would interfere with right of union members to work or cause them injury, held that union and members had no standing to attack ordinance. *Musicians' Protective Union* v. *City of Jersey City*, 66 Atl. (2d) 632 (N. J. App. Div., June 6, 1949).

Nuisances—Mule Sales Barn Near Cafes, City Market, etc.—Injunction

Where mule-sales barn was located within a block or two of cafes, grocery stores, drug stores, bakery, fruit stands, hotels, bus station and city-owned farmers' market, held that city could enjoin such business as a nuisance. *Dobbs* v. *City of Durant*, 206 Pac. (2d) 180 (Okla., April 19, 1949). *Reh den.* May 17, 1949.

Occupation Taxes—Power of City To Borrow Against Where Received After Close of Fiscal Year

In action against city for declaration of rights as to whether city could borrow from anticipated revenues from occupation tax, held that city could borrow against such revenues, although they would not be received until after close of fiscal year, without violating Constitution or statute, since collections of occupation tax by employers were constructively received by city immediately on being withheld by employers. *Meyers* v. *City of Louisville*, 220 S. W. (2d) 852 (Ky., May 20, 1949).

Off-Street Parking—Power of City To Construct Under Street Surface And Expend Tax Money Therefor

In action to enjoin city from erecting, leasing, and operating automobile-parking garage under street surface adjoining plantiff's realty, held that abutting owner was not entitled to compensation from city for such use, that fact charge was made for use of garage did not put city into an unconstitutional private business for which tax monies might not be expended or revenue bonds issued, and under revenue-bond act garage could properly be exempted from taxation. *Cleveland* v. *City of Detroit*, 37 N. W. 625 (Mich., May 18, 1949).

Parking Lots—Use of Municipally Owned by Non-Residents—Discrimination in Fees Charged

Where village ordinance fixed license fee for use of village-owned parking lot by residents of two communities outside of village limits at $1 per year and charged all other non-residents $10 per year, held that ordinance was invalid as discriminatory in violation of equal protection of law clauses of state and federal constitution. *People ex rel.* v. *Village of Lawrence*, 89 N. Y. S. (2d) 685 (N. Y. Dist. Ct., Nassau Co., May 6, 1949).

Parks—Rule Prohibiting Speeches In Without Permit Upheld

Where defendant was convicted for violating rule of department of parks of New York City which prohibits making speech in city park without permit and he appealed, held, in affirming conviction, that rule was non-discriminatory and authorized by city charter for maintenance of beauty and utility of parks, particularly where defendant was speaking at place where permit had never been refused, unless place was preempted by someone else. *People* v. *Hass*, 86 N. E. (2d) 169 (N. Y., April 20, 1949).

Policemen—Pushing Stalled Automobile—Liability of City Or Officers for Damages

In action for injuries sustained when police officers attempted to start stalled automobile in which plaintiff was riding, by pushing it, held that verdict for defendant city and officers was sustained by evidence. *Garcia* v. *City of Santa Monica*, 206 Pac. (2d) 37 (Cal. App., May 25, 1949).

Streets—Power of City to Vacate Where Highway Paid for With County Funds

Where land for boulevard in city was condemned by county for purposes of building a connecting highway system and was paid for with county funds, held that city did not have power to vacate boulevard and ordinance purporting to vacate boulevard was invalid. *Kroeger* v. *St. Louis County*, 218 S. W. (2d) 188 (Mo., Feb. 14, 1949). *Reh. den.* Mar. 14, 1949.

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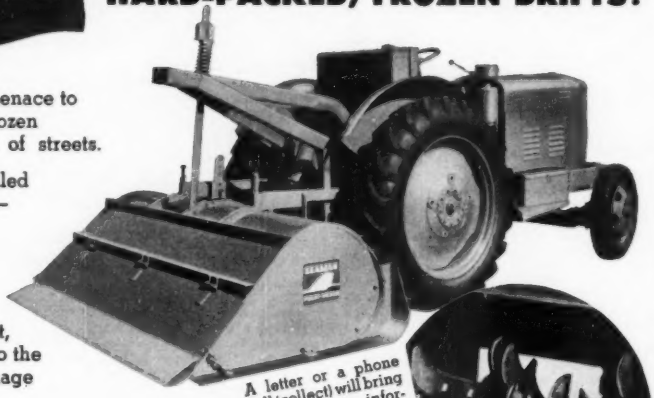
CUTS DOWN RUTS . . . SHATTERS ICE FOR EASY REMOVAL . . . PULVERIZES HARD-PACKED, FROZEN DRIFTS!

Icy streets and deep ruts are a menace to pedestrians and traffic. Hard, frozen drifts narrow the useful width of streets.

These conditions can be controlled with a SEAMAN Self-Propelled,— quickly and at low cost.

The Seaman rotor,— equipped with special ice tines, produces a powerful cutting and shattering action, yet, because tines do not penetrate to the street surface, there is no damage to the pavement.



A letter or a phone call (collect) will bring you complete information about the SEAMAN Self-Propelled Unit equipped for ice removal. Remember,— the SEAMAN is a year 'round machine. You'll have profitable use for it in mixing for bituminous or soil-cement street construction.

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Deep, dangerous ruts can be eliminated by cutting down the areas of ice adjacent to the ruts to safe levels . . . And, where snow has accumulated in hard, frozen banks at the sides of the streets, the SEAMAN is used to pulverize the material to expedite the work of removal.

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Recent City Manager Appointments

D. C. BARBOT has been appointed city manager of Florence, S. C. He was a civil engineer with the State Highway Department for 26 years.

E. L. BLACKWELL has been appointed city manager of Newberry, S. C. He was manager of Florence, S. C., from 1947 to 1949.

LOYD E. BRADY has been appointed city manager of The Dalles, Ore. He was city manager of Hazel Park, Mich., from 1944 to May 1948, and at Trinidad, Colo., from 1948 to April 1949.

A. O. BROWN has been appointed city manager at Gainesville, Ga. He was formerly assistant county engineer of Bibb County, Ga.

CARL S. BURBRIDGE has been appointed city manager of Princess Anne, Md. He formerly was a student in civil engineering at the Virginia Military Institute.

JOHN R. FICKLIN has been appointed city manager of Hayward, Calif. He was manager of Petaluma, Calif., from August 1947 to September 1949.

ARTHUR GIBBS has been appointed city manager of Flushing, Mich. He was formerly Village President of Flushing.

JULIAN F. HIRST has been appointed city manager of Pearisburg, Va. He was formerly engineer with the Southern Railway Company.

O. G. HOLWAY has been appointed city manager of Hannibal, Mo. He was city manager of Ishpeming, Mich., from May 1944 to September 1944.

ROY E. HUHS has been appointed city manager of Chico, Calif. He was formerly Public Works Officer, U. S. Navy.

MORRIS A. OLSEN has been appointed city manager of Alpena, Mich. He was formerly Administrative Assistant of the City of Alpena.

W. H. OSWALT has been appointed city manager of Midland, Texas. He was manager of Jacksonville, Texas, from June 1947 until his appointment at Midland.

RICHARD H. SMITH has been appointed city manager of Monrovia, Calif. He has been manager of Phoenix, Ariz., from 1942 to 1943, and of Ventura, Calif., from 1943 to 1948.

THEODORE M. WARDWELL has been appointed city manager of Hinsdale, Ill. He was manager at Rhinelander, Wis., from 1929 until 1949.

W. T. WELLS has been appointed city manager of Waynesboro, Va. He has been manager of Harrisonburg, Va., from 1947 to 1949, and of Radford, Va., from 1944 to 1947.

GEORGE A. WHITEN has been appointed city manager of Manchester, Ga. He was formerly sales manager with the Fryer Truck & Tractor Company of Manchester.

CLARENCE E. RIDLEY, *Director*
International City Managers' Association

Maryland Refuse

(Continued from page 97)

little about their actual condition, and some care even less. The only ones who get near them are the haulers, who, if employed by the town, generally are not paid enough to induce them to devote time to upkeep of the dump. Private haulers who have dumping areas spend no money on their control either. The average open dump has a strong, unpleasant odor which has the unfortunate ability to travel long distances. Spontaneous fires are a common occurrence and the dense smoke resulting, either with or without the dump odor, has resulted in complaints from people near by. In addition, most dumps have no water supplies on or near them, for fire-fighting purposes.

The dumping of garbage, without burning or with incomplete burning, offers an excellent breeding place for flies and other insect disease carriers in large quantities, as well as supplying food for the support of rat colonies. Frequently dogs and other small animals will be attracted to the dump and feed on it. Uncontrolled scavenging by junkmen frequently means that parts of the dump are turned up in the search for scrap metal, thus exposing to the air material that might otherwise have decayed beneath the surface of the dump. Unsupervised dumping by unauthorized parties cause trouble, for the refuse is just thrown anywhere and frequently refuse is dumped along the side of the road leading to the dump.

Dump Sites Faulty

The original choice of a dump site is often at fault, and may be the cause of much difficulty. Of the 44 towns using open dumps for garbage, 10 have them in the city limits and 14 within one mile. Those in the city limits are the cause of many complaints, while many outside the city limits are located near residential areas with the same results. Frequently dumps are located too near a stream, with the result that garbage juices leach out, or are washed out by rain, thus polluting the water; or, in the case where the water level rises, some of the refuse may actually be washed away, polluting the stream. Another fault is the location of the dump on a very steep bank. As a result of this practice, refuse going over the edge of the dump spreads out over a wide area and cannot easily be burned off. A final fault is locating the dump in an area where spontaneous fires cause a serious fire hazard to the surrounding area.

It was difficult to obtain many data on the per capita production of refuse. As a result, the figures in the accompanying table are from those communities where the refuse is weighed either for incineration or for sanitary fill. The figures for Annapolis were corrected to eliminate refuse from St. John's College and the U. S. Naval Academy, while Baltimore figures were corrected for street dirt which had been included in the tonnages reported.

PER CAPITA PRODUCTION OF REFUSE PER YEAR

City	*Garbage, and Rubbish (pounds)*	*Garbage, Ashes, and Rubbish (pounds)*
Annapolis	601.8	.....
Baltimore	614.4	.....
Frederick	687.6	1003.4
Wash. Sub. San.Dist... (Montgomery County)	625.6	.....

When it is realized that the gross figures include store refuse, it will be seen that the per capita figures on combined garbage and rubbish production are in fairly good agreement.

A sanitary program should begin by pointing out the desirability of draining and wrapping all garbage, and the adoption of uniform refuse containers. Inspection and regulation of collection vehicles and practices by the municipality would be the next step, and the control and proper maintenance of open dumps should be emphasized. Such measures that are both economical and sanitary should be made to secure close cooperation with the view of doing a better job more economically. Where construction of an incinerator is possible, the combined efforts of several near-by communities is also desirable. With the knowledge of suitable techniques now possessed by the Bureau of Sanitary Engineering, a great deal of assistance can be given in cleaning up the unsanitary conditions. It is expected that such a program as this will be planned in the near future, and the application of these ideas in the field will follow.

Mr. Heyl prepared this article from material in a report, *Refuse Collection and Disposal in Maryland Municipalities*, written by himself for the Maryland State Department of Health.

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The new Model HM Payloader has already proved its power, speed, traction and flotation on hundreds of projects for scores of owners . . . its ability to do jobs never before practical for wheeled tractor shovels . . . its digging power and loading, grading and stripping speed under poor ground conditions.

Four-wheel drive on large earthmover tires accounts for the HM's tremendous traction and flotation, but many other features contribute to its outstanding performance . . . power-boosted rear wheel steering, four speeds in each direction up to 24 mph, quick-acting, forward-reverse control, operator-controlled hydraulic dumping, powerful hydraulic brakes, easy operation and complete operator visibility.

The Model HM travels to the job fast on its own power over pavement or ground. It has 1½ cu. yd. bucket and 76 hp gasoline or diesel engine. "V" and Reversible Blade snow plows are available to make it a powerful snow fighter. Bulldozer Blade and Crane Hook attachments, also available, further increase its usefulness. Get full facts on this big, unique, multipurpose Tractor Shovel from your Hough Distributor or write The Frank G. Hough Co., 710 Sunnyside Avenue, Libertyville, Illinois.

POSITIVE TRACTION AT ALL TIMES
WITH 4 WHEEL DRIVE AND LARGE
EARTHMOVER TIRES
UPHILL REVERSE Front wheels provide greater amount of traction.
CENTER OF WEIGHT
UPHILL FORWARD Rear wheels provide greater amount of traction.
CENTER OF WEIGHT
MUD All wheels provide traction.
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CROWDING More traction on rear wheels when thrusting into pile.
WEIGHT
WEIGHT
SCOOPING More traction at front when scooping up load.
WEIGHT
WEIGHT

WRITE for full information on any size of PAYLOADER, the 1½ yd. Model HM; the 1¼ yd. Model HL; the ¾ yd. Model HF; the 12 cu. ft. Model HA.

HOUGH
SAY HUFF
PAYLOADER
Manufactured by THE FRANK G. HOUGH CO.

Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Nov. 4-5—Parkersburg, W. Va.
West Virginia League of Municipalities. Annual Convention (City Hall). Exec. Sec., Pat E. Maloney, Box 2851, Charleston, W. Va.

Nov. 7-9—Southern Pines, N. C.
American Water Works Association—North Carolina Section, and North Carolina Sewage Works Association. Joint Meeting (Hotel Highland Pines). Sec.-Treas., E. C. Hubbard, care of State Board of Health, Raleigh, N. C.

Nov. 9-10—Los Angeles, Calif.
Western Governmental Research Association. Annual Meeting (Hotel Hollywood Roosevelt). Exec. Sec., John C. Bollens, 117 University Library, Berkeley 4, Calif.

Nov. 11-13—Yuma, Ariz.
American Water Works Association—Arizona Section. Fall Conference (Hotel San Carlos). Exec. Sec., Mrs. Helen Rotthaus, Bureau of Sanitation, Phoenix, Ariz.

Nov. 13-16—Boston, Mass.
National Association of Housing Officials. Annual Meeting (Copley Plaza). Exec. Dir., John M. Ducey, 1313 E. 60th St., Chicago 37, Ill.

Nov. 14-16—Orlando, Fla.
American Water Works Association — Florida Section. Annual Meeting (Hotel Orange Court). Sec., A. E. Williamson, Jr., P. O. Box 1431, Daytona Beach, Fla.

Nov. 15—New York, N. Y.
Regional Plan Association, inc. Fourth Regional Plan Community Conference (Hotel Roosevelt). Exec. Vice-Pres., C. McKim Norton, 205 E. 42nd St., New York, N. Y.

Nov. 15-16—Little Rock, Ark.
Arkansas Municipal League. Annual Convention (Hotel Marion). Exec. Dir., Glenn G. Zimmerman, 401 Main St., North Little Rock.

Nov. 17-19—Atlantic City, N. J.
American Water Works Association — New Jersey Section. Fall Meeting (Hotel Madison). Sec., C. B. Tygert, Wallace & Tiernan Co., Inc., Box 178, Newark 1, N. J.

Nov. 18-19—Baltimore, Md.
Maryland League of Municipalities. Fall Meeting (Hotel Lord Baltimore). Exec. Sec., Joseph M. Ray, University of Maryland, College Park, Md.

Nov. 27-28—St. Paul, Minn.
National Association of Civic Secretaries. Annual Conference (Hotel Lowry). Sec., Hazelle B. Scott, Hotel William Penn, Pittsburgh, Pa.

Nov. 27-29—Fort Myers, Fla.
Florida League of Municipalities. Annual Meeting (Hotel Franklin Arms). Sec.-Treas., E. L. Cole, 1707 Barnett National Bank Bldg., Jacksonville, Fla.

Nov. 28-30—St. Paul, Minn.
National Municipal League. Annual Conference on Government (Hotel Lowry). Exec. Sec., Alfred Willoughby, 299 Broadway, New York 7, N. Y.

Nov. 27-Dec. 2—New York, N. Y.
American Society of Mechanical Engineers. Annual Meeting (Hotel Statler). Sec., C. E. Davies, 29 W. 39th St., New York, N. Y.

Nov. 28-Dec. 1—Stillwater, Okla.
Oklahoma Water and Sewage Conference. Short Course and Annual Meeting (Oklahoma A. and M. College). Sec.-Treas., H. J. Darcey, 3400 N. Eastern, Oklahoma City, Okla.

Nov. 30-Dec. 2—Cleveland, Ohio
American Municipal Association. Annual Meeting (Hotel Cleveland). Exec. Dir., Carl H. Chatters, 1313 E. 60th St., Chicago 37, Ill.

Nov. 30-Dec. 2—Atlantic City, N. J.
New Jersey State League of Municipalities. Annual Conference (Chalfonte-Haddon Hall). Sec., Madeleine S. Frost, 1212 Trenton Trust Bldg., Trenton 8, N. J.

Dec. 1-3—Washington, D. C.
American Public Welfare Association. Annual Meeting (Hotel Statler). Acting Dir., Guy R. Justis, 1313 E. 60th St., Chicago 37, Ill.

Dec. 4-8—Palm Beach, Fla.
International City Managers' Association. Annual Conference (Hotel Whitehall). Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago 37, Ill.

Dec. 5-7—Kansas City, Mo.
National Association of Municipal Law Officers. Annual Conference (Hotel Muehlebach). General Counsel, Charles S. Rhyne, 730 Jackson Place, NW., Washington, D. C.

Dec. 5-7—Albany, Ga.
American Water Works Association—Southeastern Section. Annual Meeting (Hotel Gordon). Sec.-Treas., T. A. Kolb, 433 Wade Hampton Bldg., Columbia, S. C.

Dec. 12-16—Washington, D. C.
Highway Research Board. Annual Meeting (National Academy of Sciences Building). Exec. Dir., Roy W. Crum, 2101 Constitution Ave., NW., Washington 25, D. C.

Jan. 15-20—Chicago, Ill.
Associated Equipment Distributors. Annual Meeting (Hotel Stevens). Exec. Sec., F. G. Knight, 360 N. Michigan Ave., Chicago, Ill.

Jan. 17—New York, N. Y.
American Water Works Association—New York Section. Winter Luncheon Meeting (Hotel Statler). Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York, N. Y.

Feb. 1-4—Cincinnati, Ohio
Community Chests and Councils. Annual Convention (Hotel Netherland Plaza). Bus. Mgr., George A. Devine, 155 E. 44th St., New York, N. Y.

Feb. 6-7—St. Louis, Mo.
Association of Asphalt Paving Technologists. Annual Meeting (Hotel Statler). Sec.-Treas., W. K. Parr, 1224 E. Eng. Bldg., Ann Arbor, Mich.

Feb. 6-8—New York, N. Y.
Association of Towns of the State of New York. Annual Meeting (Hotel Commodore). Exec. Sec., Edward F. N. Uthe, 91 State St., Albany, N. Y.

Feb. 21-23—New York, N. Y.
Association of Highway Officials of the North Atlantic States. Annual Meeting (Hotel Statler). Sec.-Treas., A. Lee Grover, State House Annex, Trenton, N. J.

***Feb. 23-25—San Francisco, Calif.**
American Concrete Pipe Association. Annual Convention (Hotel Fairmont). Managing Dir., H. F. Peckworth, 228 N. LaSalle St., Chicago, Ill.

March 6-9—Cincinnati, Ohio
American Roadbuilders' Association. Annual Meeting (Hotel Netherland Plaza). Engr. Dir., Charles M. Upham, International Bldg., Washington 4, D. C.

***March 10-12—Washington, D. C.**
American Society for Public Administration. Annual Convention (Hotel Statler. Sec.-Treas., Laverne Burchfield, 1313 E. 60th St., Chicago, Ill.

***March 26-28—Corpus Christi, Texas**
Southern Association of Commercial Organization Executives. Annual Convention (Hotel Driscoll). Sec.-Treas., W. S. Johnson, 227 W. Forsyth St., Jacksonville, Fla.

Business Men And Community Welfare

RICHARD WEIL, JR., president of R. H. Macy & Co., of New York, has issued a challenging call to business men to concern themselves increasingly with public affairs and problems of community welfare. Writing in *The New York Times Magazine* of Sunday, October 16, on the theme, "Business Is Not Only Business," Mr. Weil says:

Business is far more than making a living and getting ahead in a personal way. It is surviving in a group sense—and the group is not limited to business men. It means living successfully in a world beset by problems that call for straight, clear-headed thinking—and for action based on that thinking. . . . It means, in brief, good and intelligent citizenship. . . .

The future of our democracy and way of life depends in large part upon a well-informed public, able to reason logically on the basis of the data it has. . . .

On the national level, straighter thinking by business and by labor leaders could result in a stabilization of management-labor relations that would put our economy on a much sounder footing and benefit both sides. Better thinking would obviate many of the conflicts between special pressure groups that now becloud major issues in Washington and often defeat constructive legislation. And on the international level more objective thinking could result in the discarding as unimportant of a host of fears, prejudices, suspicions, and sentimentalities that obscure the logical answers to given problems and prevent better understanding between countries.

It seems clear that better thinking, which is the proper and true aim of education, is the means not only of making better men, but of making better classes, states, or societies of men—and even, we may dare to hope, of making a better world.

Years of Service Recognized

THE AMERICAN CITY and its editor, Harold S. Buttenheim, were accorded special recognition at the ASPO Conference in Cleveland last month, in the form of a handsomely engrossed scroll, awarded for having "for forty years rendered to the communities of America a public service of unparalleled merit, a service responsible in large measure for the improvements achieved in municipal administration.

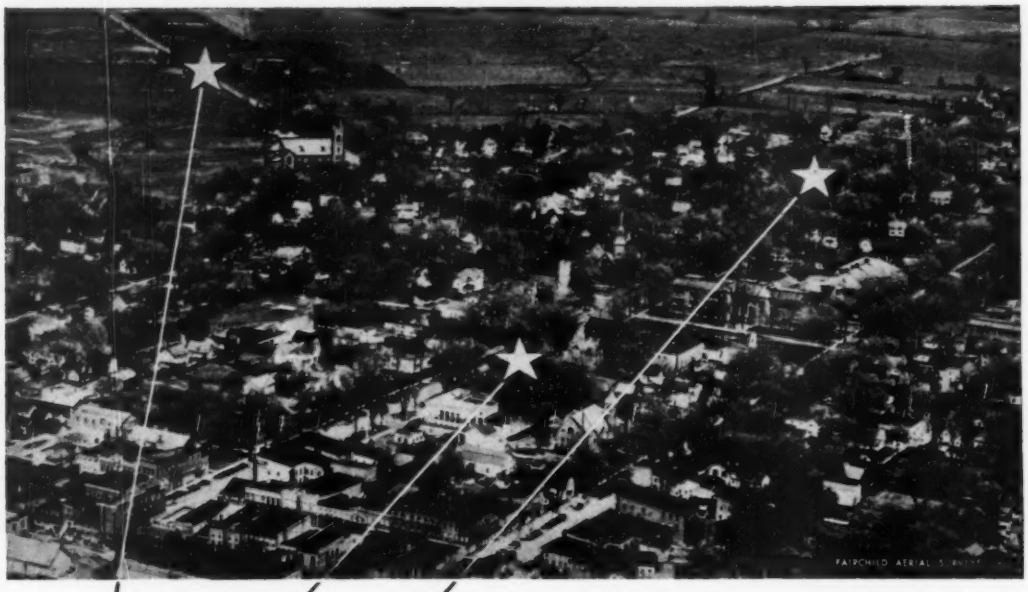
"In recognition thereof," says the award, "the American Society of Planning Officials is privileged to extend congratulations and to express its esteem and sincere appreciation, on this eleventh day of October, nineteen hundred and forty-nine, on the occasion of the National Planning Conference.

(Signed by)

CHARLES B. BENNETT
President
WALTER H. BLUCHER
Executive Director

Holophane STREET LIGHTING REFRACTORS

are made for...All Traffic Conditions ...All Mounting Applications ...All Types of Thoroughfares...



STANDARDIZE on REFRACTORS

Holophane Refractors provide greater visibility for every dollar spent. Their extraordinary light control puts the light where it is most needed on the street . . . building up pavement brightness, with general uniformity of distribution. The result: better street lighting in terms of less night accidents and deaths, improved safety conditions and greater community pride.

Holophane
Trade Mark

HOLOPHANE COMPANY, Inc.

Lighting Authorities Since 1898 · STREET LIGHTING DEPARTMENT, NEWARK, OHIO

THE HOLOPHANE COMPANY, LTD., THE QUEENSWAY, TORONTO 14, ONTARIO

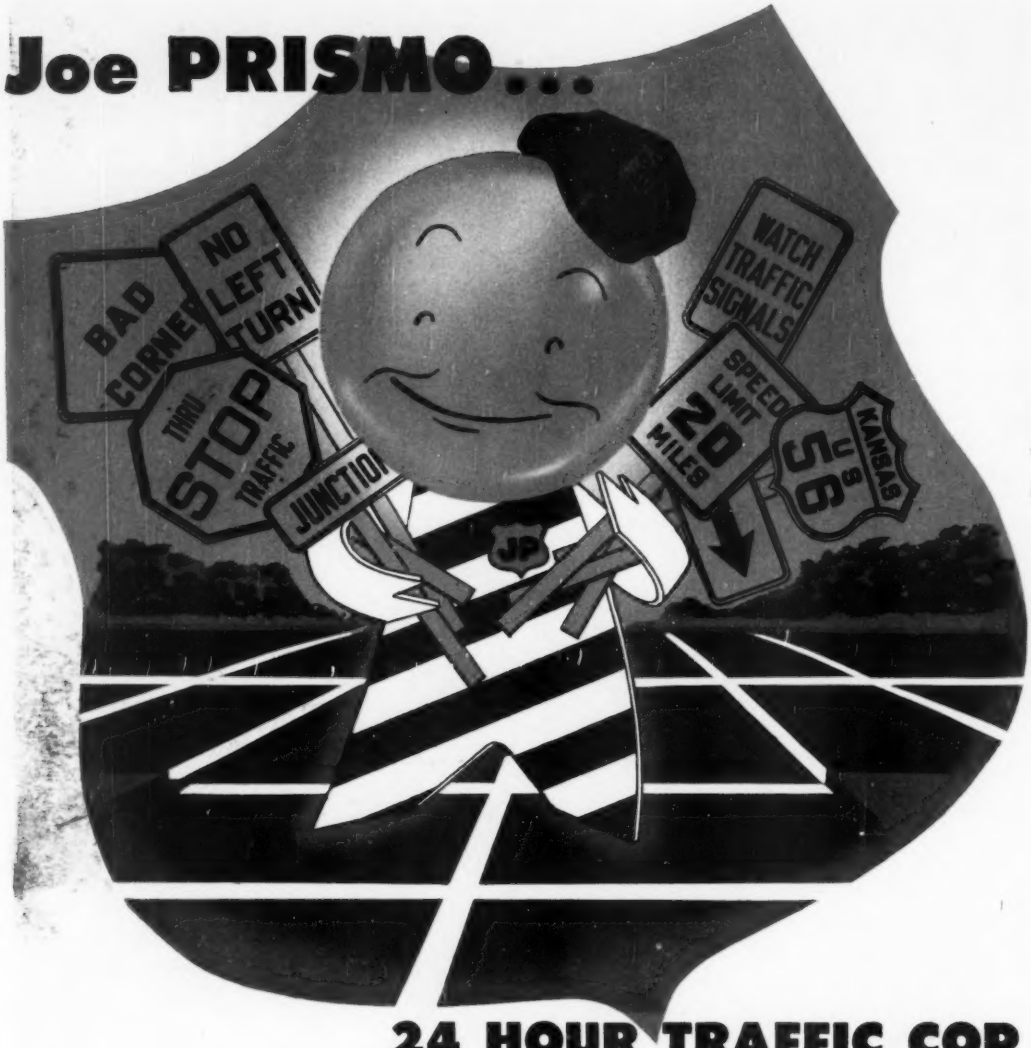
YOU CAN SEE AT A GLANCE what it takes to make a *good* parking meter when you open these two folders. They show exactly what essential features *should be* incorporated in a *superior* meter.

generalities *won't do . . .*

If you are disappointed in your present product, or if your city is about to invest in metered parking, ask us NOW for these illuminating folders. No obligation at all — just write, phone or wire for quick service.

OVER 15 YEARS OF KNOW-HOW . . . OVER 600 CITIES *Know* WE KNOW HOW

Joe PRISMO...



24 HOUR TRAFFIC COP

Joe PRISMO is on duty 24 hours a day—all over America!

He's the bright, dependable, life-saving "Miracle of Modern Reflective Coatings" that leading Safety Engineers employ to *direct* and *protect* motorists. Wherever there's a point of danger, on a busy city street or on a lonely country road, Joe PRISMO performs brilliantly.

For speedy reflectorization in the field or in the sign shop, get the PRISMO SIGN KIT! Road signs, markers, bridge abutments, cross walks, etc., are quickly and economically reflectorized.

Write today for the fully illustrated bulletins describing the PRISMO SIGN KIT and its many uses.

For the longest-lasting center line on any highway, get the Prismo Life Line.

PRISMO SAFETY CORPORATION

The SPHERE of SAFETY

HUNTINGDON, PENNA.

Traffic Control and Facilitation

On-and Off-Street Parking

EVERY person would like to park right in front of his place of work or where he wants to shop, says a new publication of the Chamber of Commerce of the U. S. A. As a second choice, he wants to park in a lot adjacent to his destination and lastly in a garage across the street.

As a first step towards providing more parking in business districts, the all-day parker must be prevented from usurping the few close-in parking spaces that can be made available without hindering moving traffic. This has been accomplished in many communities by the strict enforcement of time-limit regulations. Parking meters have not only assisted the police in this enforcement, but they have developed voluntary compliance with regulations.

A recent trend has been towards an increase in the parking-meter fee and a decrease in the basic time allowed in each space, thus discouraging the feeding of meters by long-time parkers. A midwestern city recently installed 10-cent meters for half-hour parking.

Progressive rate schedules, or "taxi-cab rates," have taken the place of fixed charges in parking lots and garages. These schedules vary; for example, some are set on the basis of 15 to 30 cents for the first hour and 5 to 20 cents for each additional hour. In this manner the customer-parker, requiring one or two hours, pays a reasonable fee of about 30 cents, but the all-day parker would have to pay one dollar or more.

A very recent trend in several locations is towards a single parking rate per hour, thus simplifying the calculation of the final charge and providing a minimum cost for short shopping trips. This further encourages turnover and makes existing space available for a larger number of parkers.

The advent of progressive rate schedules has pushed the all-day parker out five, six, or seven blocks to the fringes of the business district, where land values are lower. The all-day parker is more willing to walk this distance than the customer-parker.

Usually lots and garages in the central business district are on high-priced land, necessitating the realization of more than $1.25 per car space per day to make the facility a completely self-supporting enterprise. To realize this amount, these facilities have been either heavily subsidized, or have had rate schedules established to provide multiple use, or are of a type catering only to special groups. In some cases the first floors of multi-level structures have been given over to retail sales use. The rental obtained from such first-floor specialty shops is frequently several times that received from parking and does not interfere with efficient operation of the upper levels for parking.

Dress Up Parking Lots and Garages

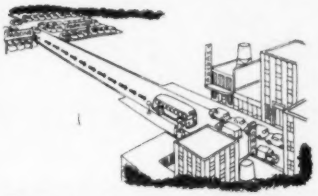
Often adequate space is available in business districts and attractive progressive rates are used to eliminate many all-day parkers, yet lots and garages are not used in proportion to the demand for space. Investigations have disclosed many simple causes:

Roughly graded and unpaved lots

Poorly laid out lots and garages, breeding crumpled fenders, long waits, and jangled nerves

Inadequate and unattractive ownership and parking-rate signs that repel customers.

The parking meter, properly operated, does not like the all-day parkers—office and service employees, store owners and managers who occupy all available space early in the day.



Business groups contemplating a fringe-parking operation should study parking fees, transit fares, insufficient shuttle service to the business district and bad publicity. Failure of most fringe-parking operations is due to the people's dislike of having to change modes of transportation en-route to their destination.

Here are ways to correct this situation:

Regrade and pave lots to be used for parking

Provide adequate lighting

Erect signs boldly setting forth rates and rules

Lay out and mark stalls for modern automobiles with wide doors.

Limited Municipal Regulations

Municipal regulations for parking lots and garages have been found to produce uniformity in operation and maintenance and to encourage greater use of facilities by the public. These may cover one or more of the following:

1. Size and location of entrances and exits
2. Appearance and physical condition of facility
3. Financial responsibility for damage or loss of vehicles
4. Proper posting of parking rates
5. Adequate lighting for night use
6. Provision of fences or raised curbing to prevent encroachment on adjacent sidewalks
7. Prohibition of moving cars from one lot to another or onto public streets during overflow periods
8. Requirements that all attendants be qualified by suitable examination.

An easy-to-read, illustrated story of the philosophy and many practical aspects of parking is told by the 40-cent, 40-page "Off-Street Parking," produced by the Committee on Urban Transportation, Chamber of Commerce of the U. S. A., Washington, D. C. Harold F. Hammond is Committee Secretary.

Modernize Transit

IT'S AMAZING how much traffic capacity is still to be found in our so-called outmoded horse-'n-buggy streets when the traffic stream is cleansed of curb parkers. Motor buses, trolley coaches, and street cars are the most efficient users of street space. But transit must make more progress than from straphanging to standee windows, if transit is to play a major part in relieving street and parking congestion and persuade people to leave their cars at home and ride by transit.

LESLIE WILLIAMS
City Planner and Transportation Engineer
New York, N. Y.

SAN FRANCISCO'S TRANSIT SYSTEM MOVES PEOPLE EFFICIENTLY...

With Electrics!

"Trackless trolleys and trolley cars will be the backbone of our transit system . . . We have 230 trackless trolleys now in service and contemplate purchasing a total of about 330."

Mayor Elmer E. Robinson
San Francisco

Mayor Robinson further explains that San Francisco's transit program has two phases:
1. Meet the immediate and urgent need for mass transit vehicles now, and
2. Provide for San Francisco's traffic needs for the next 25 years.

THAT'S SMART PLANNING

ARE THESE CONDITIONS TRUE IN *Your* CITY?

Merchants must go to their customers because customers can't get to them?

City engineers propose smaller automobiles because there's no room to widen streets?

Your city is probably suffering from traffic congestion and blight conditions. Sound transit planning—to move people instead of vehicles—may provide an answer in your city. Electric vehicles on your trunk line attract more riders because of their comfort and speed. They please transit management because of their low cost of operation. A healthy transit system means better service, more public support. Write us. We would like to help you. ***Apparatus Department, General Electric Co., Schenectady, N. Y.***

GENERAL ELECTRIC

Adequate Parking, a Municipal Utility

THE SIGNIFICANCE of the fact that there are two groups possibly more vitally concerned with the parking problem than the motorist seems sometimes to be overlooked.

These two groups are the downtown property owners — merchants, etc. — and the municipal authorities, both of whom are vitally and selfishly concerned with the maintenance of business and property values in the central business district.

While the motorist's interest in the problem is a natural one, it should not be forgotten that in the final analysis he has a choice the others have not; he may without compunction or loss transfer his patronage to another location where the parking demand has not yet reached the difficult stage.

Fundamentally the problem is one of getting people into and out of our business districts. Improvement in mass-transportation facilities therefore offers probably the greatest relief. Furthermore, it might well be argued that if any subsidy is to be considered, the best results might be achieved by its application to the transit system.

Municipal authorities are mainly alarmed at the loss of revenue brought about by the decrease in property values in the central business area. One approach to the problem therefore may lie in reassessment of suburban business properties and a revision of the tax structure which would provide for higher taxation of such properties.

Consideration should be given to any and all other steps which might be taken to combat the problem. It is quite evident, however, that a certain percentage of the population will persist in the individual inconvenience of the private auto, and, if parking accommodation is not provided in the central business district, will shop in suburban areas. Progressive merchants will then establish branch stores which will in turn attract mass-transit patrons (who would otherwise journey downtown) in addition to local residents—and so the vicious circle in the pattern of decentralization becomes evident.

Primarily, therefore, the motorist must be satisfied. From his standpoint there are two main factors: convenience and cost.

Municipal Ownership

The economic analysis which forms part of a study of the downtown parking problem in Vancouver clearly indicates that municipal ownership holds the answer to the problem of providing low-cost short-time storage. Throughout North America it has become increasingly evident that provision of parking facilities must be considered a public utility similar to city water works, sewers, and pavements. The reasons for the trend toward municipal operation are: (1) Only the municipality can acquire by the right of expropriation, property suitable for parking, (2) Only by public ownership can continued operation and relative permanency of parking facilities be assured, (3) Economically, the service can usually be provided at less cost by the municipality.

The provision of parking accommodation on expensive downtown property is a good example of the type of project which can be undertaken most effectively by the municipality. This is true provided the municipality does not become involved in the sale of gasoline or oil, or the rendering of other services which can obviously be handled more efficiently through the medium of private enterprise.

For instance, in Vancouver, there is an abundance of land in the downtown area on which the cost of providing short-time parking by the municipality would be less than 5 cents per hour. Calculations show that the city can provide off-street parking accommodations for 5 cents per hour on land which costs about $3.50 per square foot. If land can be acquired for less, the operations could be conducted at a profit. If land costs were higher, a subsidy would be required, or the motorist would have to pay more for the service. These figures apply to open parking lots, suitably developed, designed for self-parking, and with liberal allowances for car clearance and aisle spaces.

Land cost in many United States cities of comparable size may be considerably higher than the $3.50 per square foot quoted above. Where the land exceeds $5, the two-level structure would be more economical.

The foregoing refers to self-parking. In view of the motorist's dislike of spending time waiting while an attendant brings his car, it would appear that self-parking, providing not too many levels are involved, would generally be more attractive to him.

In most cities on this continent, up until comparatively recent times, operators of parking lots and garages appeared to be solely interested in the long-term parking. Certainly their rates dicouraged short-time parking and encouraged the long-term parker.

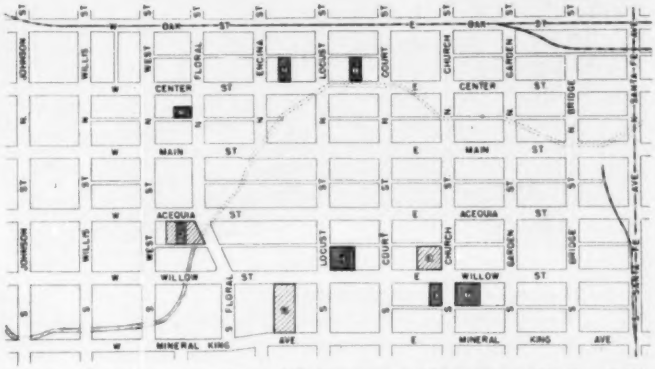
The parking problem becomes more acute as development becomes more intense. The high land costs and taxation in intensely developed areas forces the owners to use their sites in a manner to provide the greatest return on investment. Parking is not such a use until the parking situation has become so intolerable that motorists in desperation accede to high parking rates.

There is little evidence that private enterprise has so far met the parking need. Private enterprise cannot be expected normally to do this.

K. VAUGHAN-BIRCH
Traffic Engineer, Vancouver, B. C.

Meters Buy Seven Parking Lots in Visalia

HARDLY any part of our uptown business district is farther than two blocks from a parking lot. At present we are able to accommodate 443 cars. These seven lots, made possible by parking-meter revenue, would accommodate a great many more if parking attendants were present, but by depending on the public to park their own vehicles, it is necessary to allow ample clearance between cars and plenty of alley space for driving. Ultimately we will light all of the parking lots. The two already lighted get a



Paid for by the receipts from 542 Duncan parking meters, Visalia, Calif., has seven convenient lots in the central shopping district of the city.

If your city is not metered...

or if your present meters are obsolete...

or if your traffic flow needs greater guidance...

Ask to see these valuable CONTROL DEVICES

MILLER
The parking meter that is first choice all over America.
AUTOMATON
The amazing new parking meter that actually winds itself.
SCHOOL
ZONE
Duncan Safety FLASHERS
The all-electric traffic sign that commands greater attention and obedience.

Here are traffic control devices that set the pace others follow. Write today for illustrated catalog and details on how easily they can be purchased.

DUNCAN PARKING METER CORP.

835 No. Wood Street, Chicago 22, Illinois

When writing Duncan Meter Corp., please mention THE AMERICAN CITY

great deal of evening use. People prefer parking off the street if it is possible. We feel that with the amount of parking facilities we now have we are holding the taxable value of the uptown property at its present high level. The proof is that business is not spreading into small centers where parking is easily available at any time.

E. A. DUNN
City Manager
City of Visalia, Calif.

The Parking Meter's Job In Reducing Congestion

ANSWERS to parking-meter questionnaires sent by the Maryland League of Municipalities to 135 Maryland cities were received from 67 cities, or 49% of those questioned. Twenty said they have parking meters and 47 replied that meters are not being used. We happen to know that 31 cities in Maryland are using a total of 4,813 parking meters. They earned over $302,812 last year. The average income per meter for the year was $63; the highest was $136 (Salisbury). Berlin, with 20, had the fewest meters. The meters used are Duncan Millers, Mi-Cos, Mark-Times, Duals, and Karparks.

The size of the city, the amount of traffic, the width of streets, the congestion of business in the downtown section, the size of office buildings, the availability of public and private parking lots, and many other factors have a direct effect upon meter earnings. One city may compare favorably in every respect with another, except that it has only half as many parking meters. The average income per meter in the two cities might vary markedly. In general, therefore, comparative statistics can be used only with reservations.

In Maryland 25 cities operate parking lots varying in capacity from 20 to 450 cars.

A trip through the downtown areas of the great majority of Maryland cities offers convincing evidence that a serious traffic problem exists. Many of Maryland's cities are old, with narrow, winding streets that are ill-designed to support the strain of modern transportation. Parking meters will not solve that problem. They do increase the turnover of available street parking spaces and justify their use by that fact alone. In addition, meters produce revenue that many cities may use to finance positive steps toward alleviating the traffic problem. There is, of course, no one simple solution, but this much can be suggested:

1. No city intends to rebuild completely its business district or even to make extensive and expensive changes in its streets.
2. What can be done is to provide adequate off-street parking facilities even at the expense of condemning property within the business area. There is no reason why such facilities should not be made to pay for themselves.
3. The city as a whole stands to lose if city officials fail to take corrective action toward the traffic problem. Whatever is done should be done only after thorough study of the problem.

EDMUND C. MESTER
Assistant Secretary
Maryland League of Municipalities
University of Maryland
College Park, Maryland

Bus Built for the Passenger

A NEW 50-passenger diesel-powered Mack bus has just been put into service by the Board of Transportation of New York City. For increased passenger comfort, staggered seats have been installed in place of the standard double cross-seat, with the window seat slightly forward of the aisle seat. The resulting overlap of passengers' shoulders gives each rider a more comfortable seat without encroaching on the aisle space. A swivel arrangement permits passengers sitting on the aisle seats to turn out without arising to permit the person on the inside to get by.

For additional ventilation, special sliding standee windows provide fresh-air circulation over the heads of the seated passengers. Bright lighting with the minimum of power consumption is provided in this bus through the use of fluorescent lights and a Leece-Neville a.c. alternator in place of the 12-volt d.c. generator.

One of the most advanced features in the design of this bus is the all-hydraulic system in place of the conventional compressed-air system. A gear-type pump driven from the engine maintains 800 to 1,000 psi oil pressure. The following controls and units are operated hydraulically: steering, brakes, torque converter controls, door controls, windshield wipers, radiator shutter, ventilation dampers and throttle control.

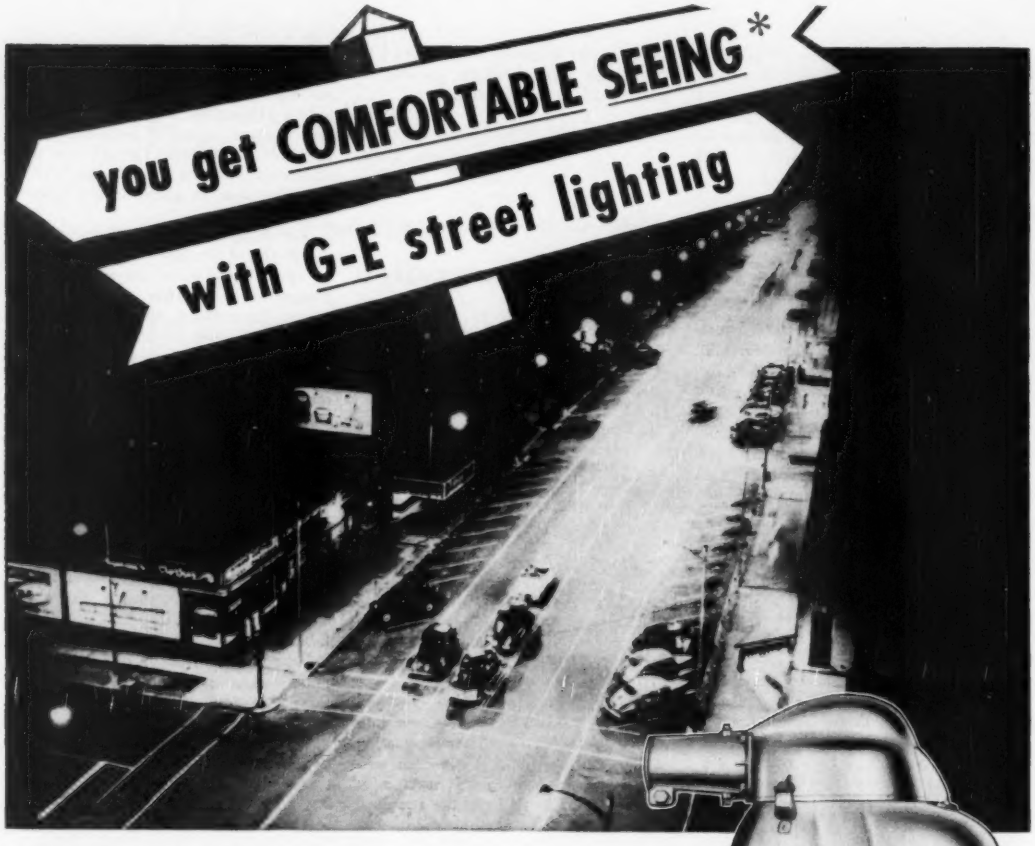
Says Ralph Budd, Chairman, Chicago Transit Board:

IN ASSUMING the chairmanship of Chicago Transit Board today, I should like to say that if I can contribute in any way to the progress and growth of this truly great city and its metropolitan area, I shall be happy.

By city ordinance and state law, Chicago Transit Authority is charged with the duty of providing a modern, unified local-transit system, and providing it at cost.

The public wants, naturally, the best service it can get at the lowest possible fares, consistent with safety and good service. Since charges will reflect actual operating costs, we must do everything possible to operate as efficiently as conditions will permit. The plan of modernization should bring about lower operating costs and at the same time better and more comfortable service.

Board of Transportation Commissioner S. H. Bingham, Mayor O'Dwyer and Mack President E. D. Bransome inspecting New York's newest Mack bus.



Comfortable Seeing—the light you need, exactly where you need it, economically.

The citizens of Kankakee, Illinois decided they wanted the best in Comfortable Seeing for their business district. One night this last June they had it—with 198 of General Electric's new luminaires, the Form 109—80 burning 21,000-lumen mercury lamps and 118 burning 16,000 lumen mercury lamps. Kankakee now has the illumination that adds up to better business and increased safety.

New from the drawing board up, the Form 109 has three outstanding features: (1) High Utilization—obtained by a scientific design of the top and main reflectors which direct all available light into the refractor. (2) Less Glare—due to deep shielding, sharp cut-off at angles of maximum candlepower, and low brightness intensity of the large refractor. (3) Rectangular Distribution—long regarded as the ideal roadway pattern, now a reality due to a new and exclusive ovate reflector which is scientifically balanced with a specially designed refractor.

When you plan your relighting, provide for Comfortable Seeing. Consider this most modern heavy traffic luminaire—the Form 109. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

This is the Form 109—a new modern luminaire for heavy traffic streets.

Available with arc-centering coil, it burns the 11,200-lumen AH-5, 16,000-lumen FH-1, and 21,000-lumen EH-1 mercury lamps. Can also be adapted for large filament lamps—greatly increasing the possibilities of standardization.

GENERAL ELECTRIC

Fluorescent Street Lighting Is Here

THE FIRST complete line of fluorescent luminaires optically designed for outdoor street and highway lighting applications has been announced by General Electric's Lighting and Rectifier Divisions. Designated as the "200 Series," the new line consists of three separately engineered models; Form 200, for traffic thoroughfare lighting; Form 201, for bridges, viaducts, and airport approaches, and Form 202 for tunnel and underpass illumination.

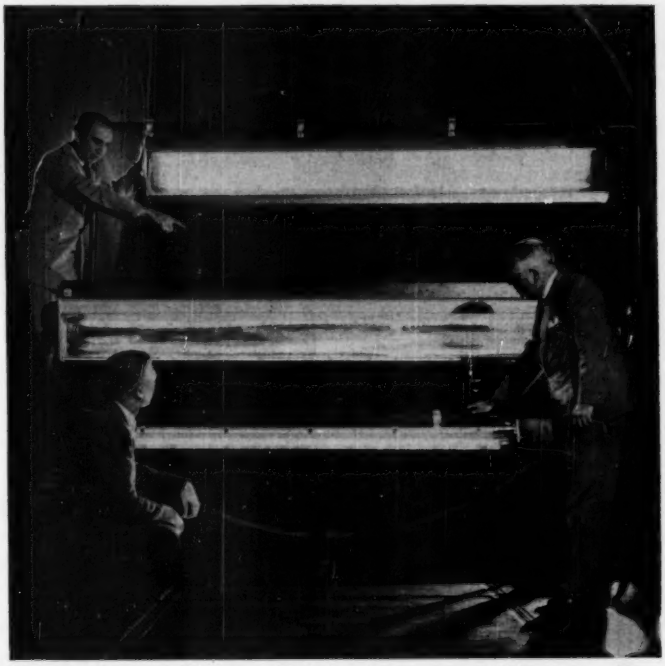
The street-lighting luminaire consists of a long, tubular, aluminum housing for two or four 8-foot-long Slimline fluorescent lamps. Two highly polished reflectors, mounted back-to-back within the housing, direct the light from the lamps through clear plastic to the roadway. The brightness of this luminaire toward the driver's eyes is lower than that of conventional fixtures because the light source is considerably larger.

Types of Luminaires

Form 201 luminaire, for use on rails, fences, and parapets where low-level mounting is desirable, is equipped with one 8-foot lamp. The Form 202 luminaire, for tunnel and underpass lighting, consists of an anodized aluminum reflector, in which is mounted a single 6-foot lamp, and a clear plastic cover hinged to permit servicing and relamping. Mounted end to end, this luminaire provides a practically continuous path of light along the length of a tunnel.

Fluorescent lighting of streets has been successfully used in England; but its use in the United States has been delayed for several obvious reasons. Weather and traffic conditions, installation problems, and maintenance costs differ greatly in the two countries.

Lighting authorities acknowledge that certain inherent advantages of the fluorescent light source should not be overlooked in the constant search for more and better roadway lighting. The fluorescent lamp is characterized by long life and high efficiency. The inherently low brightness of the fluorescent luminaire, compared with that of any conventional luminaire having similar lumen output, is an important factor in eye comfort.



Here are three new fluorescent luminaires for street and highway use. From top to bottom, are: Form 200, for traffic-thoroughfare lighting; Form 201, for lighting bridges, viaducts, and airport approaches; and Form 202 for tunnel and underpass illumination. Inspecting them in the Illuminating Laboratory, Lynn, Mass., are C. H. Rex and A. M. Bjontegard, General Electric design engineers, and H. J. Flaherty, who is Manager of Engineering for the Division.

Seattle Is Lighting 337 Miles of Arteries

WE ARE now embarking upon a program of lighting 337 miles of main arteries and expect to expend about $500,000 on that work during 1949, $1,500,000 during each of the years 1950 and 1951, and about $500,000 in 1952, or a total of $4,000,000 over the four years. This new system will comprise high-mounted mercury-vapor units of 16,000 lumens. Around 15% of the poles will be new metal poles and the balance of the fixtures will be placed on new or existing wood poles. Our specifications for standard metal pole call for a continuous tapered, octagonal pole, either plain or fluted.

In present operation are 67 miles of ornamental lighting standards, some single and some double luminaires. All of these are equipped with incandescent lamps, the average size being 50 watts. Approximately 15% of these ornamental standards are bronze, the balance being divided about equally between reinforced concrete, cast iron, and steel.

R. W. FINKE
City Engineer
Seattle, Wash.

YOU CAN BE **SURE**.. IF IT'S

Westinghouse

OV-20 Mercury-Vapor Street Lighting

APPROVED

AND FOR 10 GOOD REASONS:

1. OV-20 was the first luminaire designed specifically for Mercury-Vapor lamps.
2. OV-20 is the first luminaire operating the mercury lamp horizontally—without the use of magnets.
3. OV-20 was the first new postwar street lighting development.
4. OV-20 provides modern design—streamlined appearance.
5. OV-20 provides highest roadway brightness—with minimum glare.
6. OV-20 has hinged glassware holder for easy maintenance.
7. OV-20 glassware is easily changed in the field—without tools.
8. OV-20 provides either Type II or III I.E.S.-A.S.A. light distribution patterns.
9. Type can be changed in the field by simply changing the glassware.
10. No other mercury unit provides these features.

Thousands installed Across the Nation!

These are but a few of the reasons Westinghouse OV-20 has gained coast-to-coast approval in just three years. Get the complete story in B-3970 from Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Penna. J-04240

Montreal Is Relighting To a Master Plan

WHEN we were requested some two years ago to prepare a long-term plan for street-lighting modernization, our first step was to investigate the functional requirements of such a system. The obvious ones are accident prevention, a sense of security for the citizens, civic pride, the development of business, tourist attraction, and more effective use of the large investments in street and highway construction.

About that time, there was much talk in the newspapers regarding a master plan for Montreal which would serve as a guide in planning its future arrangement. One of the main features of the master plan consisted in the establishment of access roads and distribution thoroughfares to relieve traffic congestion.

Obviously street-lighting modernization forms an integral part of the master plan and it was our duty so to rationalize the street-lighting modernization as to permit its progressive adaptation to all municipal improvements, and, at the same time, meet the functional requirements.

The process of modernizing must, of necessity, extend over a period of several years. In the case of a large and expanding city, it is, in our opinion, a never-ending process. In view of this, we have subdivided our program into a number of phases, the first of which will extend over a period of five years.

The plan which I am about to describe should, therefore, be regarded as an attempt at coordinating the various phases of our program so that there will result for Montreal after several years of piecemeal work a logical arrangement and an up-to-date system for present and future needs.

The city covers 50 square miles with 706 miles of open streets, of which some 600 are hard-surfaced. About two years ago less than 15% of this mileage could be considered as having a reasonable level of illumination by modern standards. This was the system:

1. Approximately 11,000 lamps of 16 different types, branched off some 164 circuits, feeding from 9 substations. Most of the circuits were of the series type.
2. Over 70% of the lamps were of the direct-current arc type.
3. Over 40% of the lamps and 65% of the circuits belonged to the utility company (Quebec Hydro), the remainder being owned by the city.
4. All the lamps and circuits were maintained by the utility company, except for the underground installations, some 40 bridges, viaducts and tunnels, and a few isolated installations.
5. The average illumination throughout the city was less than 70,000 lumens per mile.

The modernization program may be stated in broad terms as follows:

1. The providing of adequate illumination in all sections of the city in accordance with the best engineering practice.
2. Simplification of the servicing and maintenance tasks by reducing the types of lamps and circuits to a minimum.
3. Simplification of the task of accounting by limiting the ownership, as well as the servicing and maintenance of the light sources to the city.
4. Improvement and, where necessary, extension to the underground system as the circumstances may demand.
5. Provision of adequate lighting in the network of access roads and distributing thoroughfares proposed by the City Planning Department, as and when they are established.

Long-Term Plan

As we have already said, these improvements must be spread over many years, and it is necessary to see that they are executed by a long-term plan.

Sooner or later it will be necessary to relieve the traffic congestion in the center of the city. One of the principal features of the master plan is the eventual establishment of high-speed access roads to link up the eight bridges of the island of Montreal with the center of the city. In addition, a network of thoroughfares crossing the city in all directions will speed up traffic during the rush hours.

This network of arteries could easily become confusing after nightfall, especially for the visitors, unless clearly indicated. We propose to light the access roads with lamps emitting a contrasting light—say the bluish light of the mercury-vapor lamp—while all the other arteries will be lighted by incandescent lamps giving the ordinary white light.

With this program, we believe that Montreal will eventually have a street-lighting system fulfilling modern requirements.

The first phase, started two years ago, consists of the replacement of all d.c. lamps and circuits by more modern installations of the a.c. type and raising the general level of illumination.

Of the original 11,000 lamps, 7,500 are the d.c. arc lamps and are to be removed. Approximately 15,000 new light sources of modern designs are to be installed. This will give Montreal 18,000 lighting fixtures and a level of illumination three or four times the present. In the last two years, some 3,000 new light sources have been installed, thus accounting for 20% of the program.

ALBERT LEDUC
Department of Public Works
Montreal, Canada

This is a summary of an address delivered before the Montreal Section of the Illuminating Engineering Society on January 26, 1949.

Better Lighting Smooths Traffic in West View, Pa.

THE main street of the Borough of West View, Pa., is Perrysville Avenue locally, but to Pittsburghers it is Route 19, the principal highway north and south through Pittsburgh.

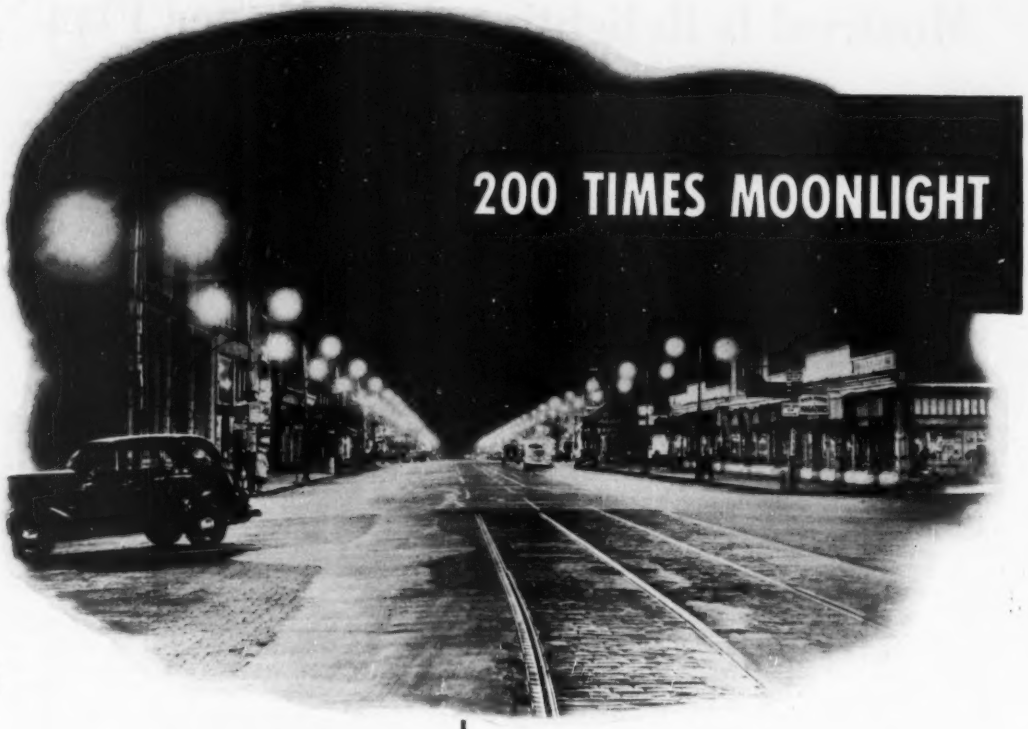
Traffic on Perrysville Avenue is heaviest during the summer months because of vacationists, and particularly hazardous after dark because of the poor visibility.

A survey by the Duquesne Light Company, followed by installation of Westinghouse luminaires, made a remarkable improvement in visibility. The shadows and spotty illumination of the old lighting has been eliminated. Traffic at night has been expedited.

Lighting Studied In Springfield, Ill.

COURT HOUSE SQUARE is but one segment of a proposed street-lighting modernization of the entire downtown area of Springfield, Ill. The Square has received more attention because drawings and studies were made on this particular location to serve as a pattern for the entire commercial area. To take the project out of the talking stage, the Chamber of Commerce has appointed a special committee. The proposal is to accomplish the modernization by a special assessment against the property owners in the area.

The plan for Courthouse Square is for 21,000-lumen mercury-vapor lights, 24 units taking the place of the old 4,000-lumen ornamental units. The old lamps put close to zero foot-candle on the pavement, while consuming 250-300 watts each. The mercury lamp consumes a little over 400 watts and supplies 1.59 average foot-candles per square foot. The 24 mercurys consume 9,600 watts and furnish 500,000 lumens, compared with about 10,500 to 12,600 watts and 168,000 lumens by the 42 incandescents. The larger project is for a system in 16 downtown blocks.



LOOK FOR THIS NAME

It identifies aluminum reflectors made extra bright that won't chip, spall, or peel. Clean them regularly and they will last indefinitely. Leading manufacturers make Alzak reflectors in standard shapes and sizes, in specular and diffuse finish.

Over five foot-candles flood Falls Street in Niagara Falls, New York. That's a brilliance 200 times average moonlight. General Electric luminaires with Alzak reflectors make this street one of the world's brightest. Yet there's a note of economy here. Alzak reflectors are efficient . . . have long life . . . save lighting dollars.

Think of your lighting. Big money goes into wire, fixtures and current. Why waste that investment with poor reflectors, when Alzak reflectors give high lighting efficiency. ALUMINUM COMPANY OF AMERICA, 1859L Gulf Building, Pittsburgh 19, Pennsylvania.

ALZAK REFLECTORS

OF ALCOA ALUMINUM

ALCOA ALUMINUM

made by Leading Lighting manufacturers

How to Sell, Understand, and Plan Modern Street Lighting

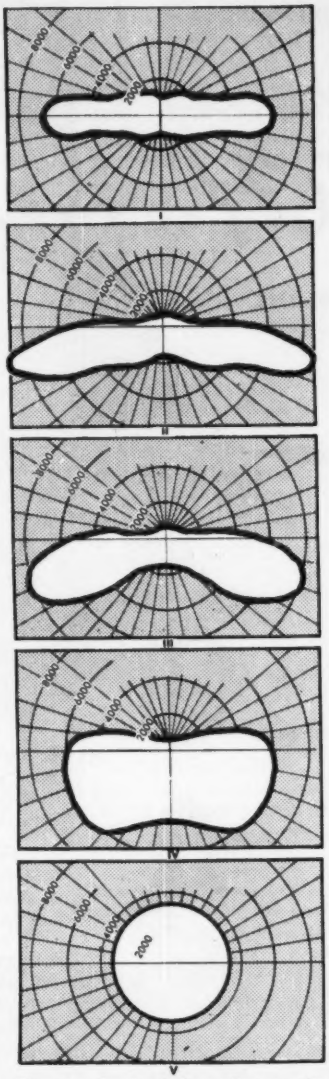
MANY figures are available which say that more than half the total traffic fatalities occur at night, when only a third of the full day's traffic is abroad. Common sense says that lack of visibility is a traffic hazard of the first magnitude. The countermeasure is lighting on main streets and arteries.

To provide greater traffic safety, to curb crime, and to promote civic progress, many municipalities relighted as soon as luminaires and standards again became available. Many others are relighting now, and still others intend to do so. Usually there are three stages in a street-lighting program. The first is a selling job wherein the business interests and residents, as well as the municipal officials, become convinced that better lighting is needed in the town. The second stage is to get acquainted with modern street lighting, with the factors that make street lighting different from other types of lighting, with the methods of attaining the proper degree and kind of visibility. The third stage is the practical planning of the actual program appropriate to the town.

A new booklet of 28 illustrated pages, covering all three of these stages, has been produced by Westinghouse Electric Corporation, Lighting Division, Cleveland, Ohio. Not only is it available free to municipal officials, but for municipal and private utilities Westinghouse will furnish reprints in quantity at cost. Municipalities considering relighting, and utilities desiring a more informed public opinion on their lines on modern street lighting, will find profit in broadcasting this new booklet.

Here is a condensed graphic argument for visibility on your streets at night. Charts give day and night experience on streets in Toronto, Detroit, New Haven, San Francisco, and on New Jersey's highways. It is pointed out that traffic arteries comprise only 10% of the mileage but have half the town's traffic fatalities. In pictures and photographs the actuality of crimes on dark streets is shown. This condition is growing worse in many cities. Police Chiefs attest to the reduction in crime when streets are adequately lighted. These are the compelling reasons for modern street lighting. That it also attracts new business was long since proved.

How far should a driver be able to see at night? The booklet says that the minimum stopping distance at maximum car speed is 1,800 feet. It is just as important that the driver see this far ahead at night as in daylight. Street lighting can provide various methods of discernment, by silhouette, contrast, surface detail, glint, and shadow. Photographs illustrate this. Correctly applied systems emit the light at the proper angle from the luminaire, located properly with respect to the street.



Here are five typical candlepower distribution types which meet most street and highway lighting requirements, established by I.E.S. and A.S.A. standards.

There are six major classifications of streets and highways in most of today's larger cities. Smaller communities have up to five. One of the first steps in outlining your lighting problem is to determine with what classifications you have to deal. For primary business streets, where both vehicular and pedestrian traffic are heavy, it is necessary not only to have high pavement brightness, but also to have high levels of vertical illumination. This is because range of vision is limited to shorter distances than on the highway, and pedestrian traffic is heavy. Moreover, the bright background created by lighted store windows and signs reduces contrast. It is necessary to have sufficient light on the objects themselves, to distinguish them easily and their direction of movement. (2 to 2.5 foot-candles.)

Slightly lower levels of illumination may be used (approximately 1 to 1.5 footcandles) on secondary business streets. Primary traffic arteries carrying heavy vehicular traffic and light pedestrian traffic require 1.5 to 2 footcandles. Illumination on residential streets is required primarily for protective and police purposes. Ordinarily 0.3 average footcandle on the street, and 0.2 on the sidewalk, are sufficient.

Since in most cases it is not possible to change over an entire installation at one time, it is well to lay out a progressive program, taking the most dangerous streets and lighting them first, and from them, branch out to include the entire city.

Thank You, Mr. Dickerson

Mr. Edgar J. Buttenheim, President
THE AMERICAN CITY
Dear Mr. Buttenheim:

Congratulations in respect to the 40th anniversary of THE AMERICAN CITY magazine! You and your associates have done outstanding work over the years in greatly benefiting municipal operations throughout this country. Through your publication, the smallest community has been able to keep abreast of the times and profit from the experiences of our larger cities.

In this connection, I am glad that you are monthly bringing to the attention of your readers the progress that is being made in outdoor lighting and traffic control. As a nation, we are now in a new era of night-time activity, and unfortunately our outdoor lighting, particularly street lighting and recreation lighting, has not kept pace with the change in the public's thinking in this regard. Through THE AMERICAN CITY, I know much can be done to improve this situation.

A. F. DICKERSON, *Manager*
Lighting and Rectifier Divisions
General Electric Company
West Lynn, Mass.

Have you seen L-M's latest street lighting development?

the revolutionary new

AUTOLATCH

...the first truly automatic pressure latch!

No gaskets! yet it's bug-proof and water-tight

Service from the ground! any standard hook stick will work

Trouble-free maintenance! Autolatch cuts your lamp maintenance time and costs

Now on the L-M Spherolite... soon on Spherolite Jr.

At no increase in price!

L-M's revolutionary new Autolatch provides a minimum of 40 pounds pressure to hold glassware tightly to the reflector. Spring pressure on both latch and hinge sides. Uniformly smooth-surfaced glassware edge fits tightly against machined reflector edge. Bugs, dust, and water stay out. Yet the latch is easy to open. To close, you just swing the glassware back up, and the Autolatch snaps shut—tight.

The Autolatch is just another advantage of L-M's highly efficient Spherolite Luminaire. For complete details of Spherolite, its adaptability to either incandescent or mercury vapor, and the Autolatch, ask the L-M Field Engineer or write Street Lighting Division, Line Material Co., Milwaukee 1, Wisconsin.

2

3

1. Front view of the revolutionary new Autolatch. Works easily, permits service from the ground, cuts maintenance, no gaskets are necessary—and there's no increase in price!

2. U-shaped metal end fits right under the Autolatch. Tilting the stick outward slightly releases the latch, and the glassware swings down (3). (The U-shaped attachment fits the reverse end of your regular lamp stick).

4. Glassware is easily unhooked and replaced. Precisely engineered parts fit smoothly. No gaskets. No screws! It's a 3-second job with the Autolatch—and (5) swinging up the glass snaps the Autolatch shut.

4

5

LINE MATERIAL Street Lighting

Complete Coordinated Equipment for All Distribution Requirements

7381

The picture at left shows how Third Avenue, New Brighton, Pa., looked before new lighting. The picture at right shows how much safer and pleasanter Third Avenue is now, with these Westinghouse luminaires on Union Metal standards.

New Lights Brighten New Brighton

By TOM BISHOP
Burgess
New Brighton, Pa.

WHEN we are considering a civic improvement in our borough, we discuss it with specialists in that particular field. When the matter of more adequate street lighting came up not long ago, it was just good business to consult the street-lighting specialists of the Duquesne Light Company, the utility which supplies our electricity.

The Duquesne Light Company offers an important street-lighting engineering service without charge. Their engineers surveyed our lighting and prepared "A Planned Street-Lighting Program for the Borough of New Brighton."

This was the solution to our street-lighting problem. The report was reviewed by a representative of the Duquesne Light Company at one of our council meetings and a copy of the report presented to each member of the council and to others interested.

Although the program was town-wide, we decided to relight in steps over a period of years. Third Avenue and parts of Fifth Avenue were relighted as the first step. Eventually the borough will have modern lighting.

The new lighting is a remarkable improvement over the old, as the photographs indicate. It has attracted additional trade for the merchants, with sales from night window shopping.

Another benefit is safer traffic and pedestrian movement. Motorists and pedestrians alike can see each other much more easily than they could before the lighting was improved. Many of our townspeople have commented favorably on the new street lighting and asked us how long before they get new lighting on their street.

The additional cost is only 20 cents per capita per year. This is a small sum to pay for the very real protection against accidents and crime, and for the additional trade brought to our merchants. We hold that good street lighting is visible evidence that New Brighton officials are progressive, and alert to the needs of the people.

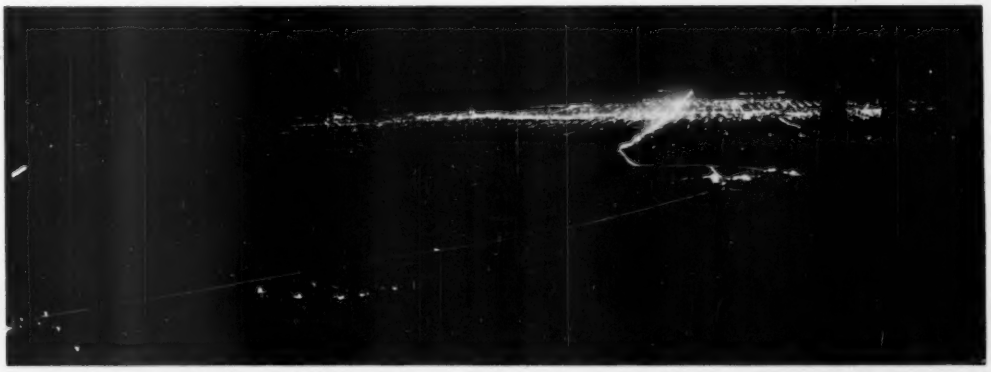
New Mercurys Light 9½ Miles of Denver Highway

A RIBBON of sparkling, blue-white light now marks the path of U. S. Highway 40 through the city of Denver. Nine and one-half miles of the east-west highway, from city limit to city limit, has been re-lighted with 16,000-lumen mercury-vapor lamps. Believed to be the longest single stretch of mercury lighting through any one city, the installation comprises more than 450 fixtures mounted 30 feet above the pavement and staggered at 110-foot intervals.

The new mercury-vapor luminaires, the bulk of which were supplied by the General Electric Company, were installed as part of a ten-year plan to modernize all traffic arteries in the Colorado capital. The new lighting fixtures along Highway 40 replaced obsolete 4,000-lumen incandescent units which were mounted 22 feet above the pavement, and spaced 300 feet apart.

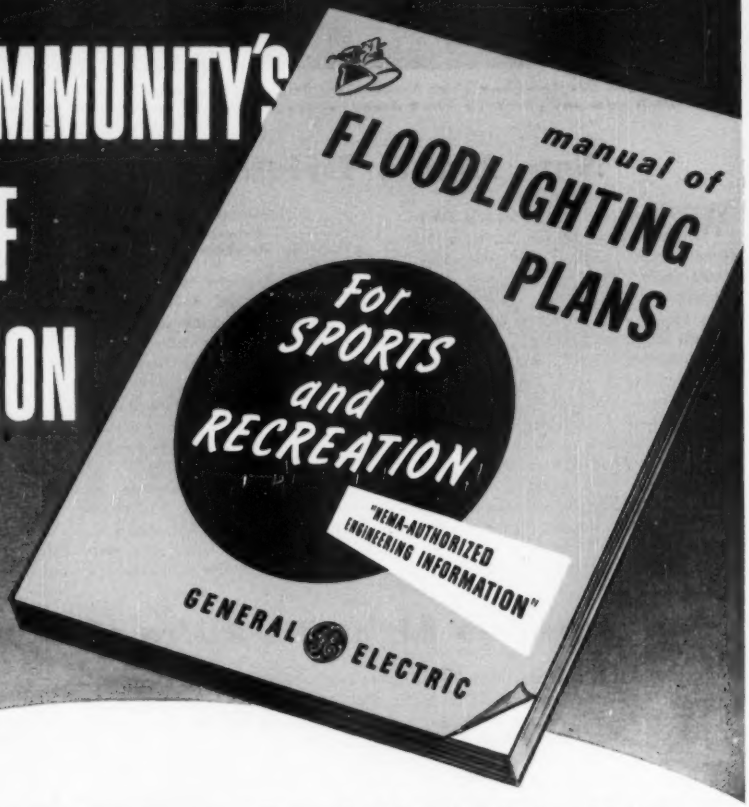
According to C. O. Woodworth, Lighting Specialist of the Public Service Company of Colorado, the new lighting provides an over-all light intensity of 0.7 foot-candle average illumination.

H. A. Barnes, City Traffic Engineer, who has supervision of the city street lighting, pointed out that the well-lighted traffic artery increases the safety factor, helps to eliminate accidents, and attracts trade as well.



Here is a night view of Highway 40, Denver, illuminated by General Electric mercury-vapor lamps.

Here's a book of plans to **HELP YOU DOUBLE YOUR COMMUNITY'S HOURS OF RECREATION**



● It's no secret that most sports and recreation areas stand almost idle during the work-week. It's not that they aren't wanted. It's simply that they're not available when they're needed most—at night. The only way to have recreation areas available *when most people are available* is to floodlight. Floodlighting can actually double your community's hours of recreation.

If you're like most planners you realize the community benefits of floodlighting—the booster spirit which develops when people can see the home-team play, the lessening of juvenile delinquency, the welding together of community groups, and the providing of a meeting place for all sorts of community rallies.

Of course floodlighting takes planning, and that's where General Electric's new manual "Floodlighting Plans for Sports and Recreation" comes in. It's the latest word—all plans based on "NEMA-authorized engineering information." Not only lighting plans but lists of materials are included. Just about everything you need for planning the floodlighting of any area. There are plans for every sport from archery to volley ball, with special sections for baseball, softball, and football.

Plan now for next season. Make your community's free time *fun time*. A copy of this book of plans is yours for the asking. Write for bulletin GET—1284C., *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*

GENERAL ELECTRIC

451-131

Municipal and Civic Publications

Valves for Water and Sewage

VALVE MANUAL FOR WATER WORKS AND SEWAGE WORKS OPERATORS—*By Vance C. Lischer, Missouri Water and Sewerage Conference, State Office Bldg., Jefferson City, Mo.* 76 *pp.* $2.50.

A manual designed to serve as a guide in selecting and maintaining valves used in water and sewage works. The book includes two reprints of articles from *Valve World*, and lists recommended preventive maintenance work from the War Department Technical Manual TM5-661. The author or compiler of the manual is a member of the staff of Horner and Shifrin, consulting engineers, St. Louis, Mo.

Airport Accounting and Budgeting Guide

AIRPORT ACCOUNTING, BUDGETING, AND INSURANCE—*Civil Aeronautics Administration, U. S. Department of Commerce. Airport Management Series, Jan.* 1949. 36 *pp. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington* 25, *D. C.* 15 *cents.*

This booklet, prepared by the Office of Airports, is one of a series to be published by the Civil Aeronautics Administration on airport management, operation and maintenance. It is intended to aid airport owners and operators in establishing more efficient methods in the management of airports, and in placing this segment of the aviation industry, which is a comparatively new department of municipal government, on a sound economic basis.

Many of the management and operation methods discussed in the booklet are based on specific and actual expriences which to a large extent have aided some airports to enjoy a successful as well as an economical operation.

Regulations for Parking Lots

MUNICIPAL REGULATION OF PARKING LOTS—*The Eno Foundation for Highway Traffic Control, Saugatuck, Conn.* 1949. 66 *pp. Available upon request.*

This booklet is based upon replies from 769 cities of over 10,000 population giving information about ordinances regulating the operation of parking lots. Chapters are included on parking lot licenses, signs, physical requirements, protection required, miscellaneous regulations, and experiences in regulation lots. A model ordinance regulating parking lots is included in the report.

Critical Review of N. Y. C. Housing Projects

THE SIGNIFICANCE OF THE WORK OF THE NEW YORK CITY HOUSING AUTHORITY—*The Committee on Housing, New York Chapter, American Institute of Architects,* 115 *E. 40th St., New York* 16, *N. Y. Large Scale Housing in New York. Mongraph No.* 1. 1949. 129 *pp.* $2.50.

A comprehensive and thoughtful critical review of the work of the New York City Housing Authority which sought answers to two main questions: How well is public housing satisfying the physical needs of family living? How well does large-scale housing satisfy the needs of community living?

The Committee headed by Arthur C. Holden, with Perry Coke Smith and Henry S. Churchill as vice-chairmen, finds much that is commendable in the Authority's approach and program, and a number of factors still needing improvement. Photographs of various projects, comparisons of unit and building plans, and site plans for 44 of the projects should be of special interest to local housing authorities in other cities.

The sections of the report dealing with the relationship of housing projects to the city plan and cooperation with governmental agencies should also be found useful elsewhere.

Pumps, Turbines, Compressors

ENGINEERING HANDBOOK—*Published by De Laval Steam Turbine Co., Trenton* 2, *N. J.* 265 *pp.* $2.

A reference book useful to those whose work involves steam turbines, pumps, blowers, gears or pumping viscous material. The book is divided into seven sections. The largest, General, is devoted to mathematical and other data that relate to the following six sections. These are headed Steam Turbines, Centrifugal Pumps, Imo Pumps, Centrifugal Compressors, Helical Reduction Gears, and Worm Reduction Gears.

Engineering

ENGINEERING THE NEW AGE—*By John J. O'Neill. Ives Washburn, Inc., 29 W. 57th St., New York* 19, *N. Y.* 320 *pp.* $3.50.

A good book for the technical man to have in his library. It is particularly useful when talking with his non-technical friends. Mr. O'Neill is Science Editor of the *New York Herald Tribune* and writes with the fluent imagination of an editor on subjects familiar to all engineers. His orderly technical background asserts itself when he meticulously catalogs all the "gadgets" of a city alphabetically from airports to zither factories. He builds up the morale of the engineer by showing that the ancient acts of the mythological gods were in reality engineering feats. He takes a dim view of the present condition of our great cities and puts in a bid for greater recognition of the engineer in the new age.

Municipal Finance Text

MUNICIPAL FINANCE ADMINISTRATION—*Prepared for the Institute for Training in Municipal Administration by the International City Managers Association,* 1313 *East 60 St., Chicago, Ill. Fourth Edition,* 1949. 491 *pp.* $7.50.

The fourth revised edition contains completely rewritten and revised chapters on municipal revenues, budget-making, budget administration and expenditure control, and long-term financial planning. Well-known national authorities and municipal officials in the field of finance assisted in preparing the text.

Like the other seven volumes in the municipal management series, this work is not intended to produce qualified technicians—in this case accountants, assessors, or tax collectors. Instead, it approaches fiscal problems from the point of view of the "top men" in fiscal management—the finance director, the mayor, and the city manager. The basic principles and techniques of accounting, cost accounting, assessing, purchasing, and treasury management are presented to provide the administrator with a basis for supervising these technical processes. But primary emphasis is placed upon such administrative problems as current and long-term budgeting, the formulation and administration of borrowing and debt retirement programs, and the integration of the various fiscal activities into a coherent and coordinated organization.

How a Local Parking Authority Works

WHITE PLAINS PARKING AUTHORITY—*Report available from Authority, Municipal Building, White Plains, N. Y.* 1949. 11 *pp.*

The White Plains Parking Authority is the first such Authority to be created under the laws of the State of New York. It is one of the first to put off-street metered parking lots in operation. This report describes briefly its history, organization, functions, method of financing, and general operational procedure. The Authority points out in the report that off-street sites for parking are not picked at random, but as part of a master plan worked out with the City Planning Board.

The Kansas City "Junior Cities"

THE JUNIOR CITIZENS HANDBOOK—*Community Service Div., Kansas City Welfare Dept., City Hall, Kansas City* 6, *Mo.* 1949. 34 *pp.*

This handbook describes in text and illustrations how the children and young people of Kansas City are interested in city government at an early age and have the opportunity to learn, first hand, the mechanics of municipal administration. The instrumentality used is the Junior Citizens Organization, sponsored by the Community Service Division of the Kansas City Welfare Department.

In school and while at camp the young people learn government by nominating candidates for the various city offices, holding elections and inaugurating their elected officials, exactly as it is done under the City Charter. In this way they learn the provisions of the Charter as they relate to elections and are better able to understand the qualifications required of nominees for the offices to be filled. After the elections the successful candidates are inaugurated and meetings of the City Council follow, just as they do in the actual operation of the city government.

Charters are granted to various elementary schools to operate as Junior Cities, and all school affairs are handled by the various departments of the Junior City government. The junior citizens of each district make their wishes known through their councilman.

Golf Course Handbook

GOLF FACILITIES, A HANDBOOK OF GOLF CLUB ORGANIZATION, CONSTRUCTION, MANAGEMENT AND MAINTENANCE—*National Golf Foundation,* 407 *South Dearborn St., Chicago* 5, *Ill.* 1949. 80 *pp.* $2.

Many suggestions for communities desiring to establish golf course facilities are presented in this attractive booklet. Photos and sketches of various golf course layouts, and of club-house designs should prove helpful to municipal recreation departments. Suggestions are made on maintenance of grass and facilities. The booklet urges that golf courses be planned as an integrated part of a municipal recreation system, and that, wherever possible, other sports facilities be included to make a community sports center.

U. S. Highway Practice

HIGHWAY PRACTICE IN THE UNITED STATES OF AMERICA—*Public Roads Administration, Federal Works Agency,* 1949, 230 *pp. Available from Superintendent of Documents, U. S. Government Printing Office, Washington* 25, *D. C.* 45 *cents.*

Prepared primarily for the use of foreign engineers who come to the United States from all over the world to study and observe highway practice as it has developed in this country, and for other students of highway subjects, this bulletin is an excellent reference source and over-all review of all aspects of road planning and building.

The bulletin is divided into four major parts, which report on highway history, administration, and finance; systems and standards; location and design; and construction and maintenance.

Chicago Anti-Discrimination Pamphlet

YOUR CIVIL RIGHTS—*Mayor's Commission on Human Relations, 54 West Hubbard St., Chicago* 10, *Ill.* 42 *pp.*

A handy-size booklet containing information about Chicago ordinances and Illinois legislation pertaining to discrimination. The booklet outlines types of discrimination in private business and in public places, and indicates the steps that can be taken by the wronged person. There is attention given to the responsibility of public officers and agencies to enforce the law, and a listing of governmental and social agencies which will help.

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Redevelopment Conference Report

ADMINISTRATIVE PROBLEMS IN FEDERAL AID FOR URBAN DEVELOPMENT AND REDEVELOPMENT—*By Coleman Woodbury and William L. Slayton. Summary Report of the Second "1313" Conference on Urban Redevelopment, July 14-16, 1949. Public Administration Clearing House, 1313 E. 60th St., Chicago 37, Ill. 1949. 37 pp.*

Report of a 2½ day conference, at which participants were representatives of most of the agencies that are furthest advanced in planning for redevelopment and a number of other public and private organizations and individuals interested in the field.

The conference discussions pointed up areas of agreement and also recorded differences of opinion and interpretation. The report should be examined by all local officials concerned with redevelopment or who contemplate applying federal funds for redevelopment purposes.

Community Center Planning and Standards

COMMUNITY CENTRES—*Planning Research Centre, School of Architecture, University of Manitoba. University of Manitoba Press, Winnipeg, Canada.* 1949. 120 *pp.* $1.

Planning procedure and planning standards for Canadian community centers as described in this handsome brochure. At the request of the Prairie Rural Housing Committee, the Planning Research Centre of the University of Manitoba conducted a fifteen-month program of research into the planning of community centers for the rural areas of the three Prairie Provinces. Most of the material based on this research and contained in this booklet can, however, be adapted to the needs of any region.

The conditions and requirements peculiar to a number of communities were analyzed and studied. In many instances the community center studies were developed to the sketch p'an stage and the resultant plans and perspective sketches were submitted to the community concerned for criticism and further discussion. The final results of this development of individual schemes supply much of the illustrative material for this booklet, and also served as the basis for the organization and planning principles set forth.

Urban Geography Text

URBAN GEOGRAPHY—*By Griffith Taylor. E. P. Dutton and Co., Inc., 300 Fourth Ave., New York 10, N. Y.* 1949. 439 *pp.* $7.50

An excellent advanced text by a professor of geography in the University of Toronto which contains much of value for professionals in the field of urban development. The book is a study of site, evolution, pattern and classification in villages, towns and cities. The author has been collecting data on this subject since he was engaged in the preliminary surveys for Canberra in 1910, and has personally visited almost all of the 200 towns reported on in this volume.

The book is divided into three parts. The first deals with typical settlements in each of the seven continents, the early stages of settlements, land surveys and general phases of town evolution. The second part discusses changes in site and pattern, from Neolithic to modern times. The third part specializes in topographic and functional controls in modern towns. Chapters on city planning, regional surveys and classification of towns close the book.

There are almost 300 specially drawn pen and ink plans and diagrams of towns by the author—which add greatly to the usefulness of the text material.

Australian Tax Policy

THE CHALLENGE OF AUSTRALIAN TAX POLICY—CAN PROFESSIONAL ECONOMISTS CONTINUE TO IGNORE EXPERIENCE WITH LAND VALUE TAXATION?—*By Harry Gunnison Brown. Reprint from the July 1949 issue of The American Journal of Economics and Sociology, 50 East 69th St., New York 21, N. Y.*

A review of some of the major research findings comparing various systems of local taxation in effect in different areas of Australia. The findings, according to the author, show the beneficial results of a local system or real estate taxation levied on land values only.

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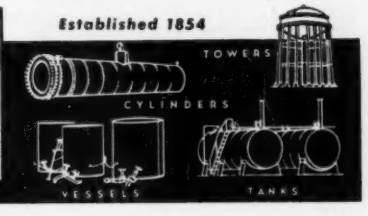

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Administering Community Sports Programs

COMMUNITY SPORTS AND ATHLETICS, ORGANIZATION, ADMINISTRATION, PROGRAM—*By National Recreation Assn. A. S. Barnes & Co., 101 Fifth Ave., New York 3, N. Y.* 1949. 500 *pp.* $4.

A comprehensive presentation of the problems involved in initiating and conducting a sports program organized and designed to serve the interests and needs of everyone in a community. The book represents the combined experience of a large number of men and women responsible for sports programs in localities.

The book outlines the organization of the recreation department, and gives considerable attention to local and municipal problems. It demonstrates how to conduct activities, to classify participants, to set up eligibilityy requirements, to manage tournaments, to operate city-wide leagues, to hold meets, play days and picnics. Special attention is given to leadership functions, standards, personnel practices, officials and volunteers. The requirements for indoor and outdoor facilities are fully explained. Methods of record-keeping and types of records, winter sports, water sports, game skills events, and special programs are carefully described and illustrated.

A Big City Neighborhood Plans Its Future

JACKSON HEIGHTS LOOKS TO ITS FUTURE—*Jackson Heights Community Federation, 37-22 82nd St., Jackson Heights, N. Y. Report of Matteo Spalletta, President.* 1949. 16 *pp.*

An interesting review of the background and activities of the Jackson Heights Community Federation, an unusual organization in the borough of Queens, New York City, composed of 25 different community groups. The Federation has sponsored a number of projects designed to improve the Jackson Heights area as a desirable residential community within a large city. Its approach to community planning and leadership problems may help other large cities.

Pennsylvania Recreation

RECREATION MANUAL—*State Planning Board, Department of Commerce, Commonwealth of Pennsylvania, Harrisburg, Pa.* 1949. 44 *pp.*

This recreation manual is the fifth in a series of publications by the Pennsylvania State Planning Board on local powers conferred under the State statutes for planning, zoning, and community development in Pennsylvania. The manual contains sections on the legal authority for a local recreation program, functions of a recreation board or commission, and suggestions on promoting and establishing a recreation program. The appendices include an ordinance to create a recreation board or commission, aids available in establishing local programs, salary recommendations, standards for recreation positions, and financing public recreation.

Planning and Housing Reports

AJAX, ONTARIO—Canada's Newest Industrial Community. Central Mortgage and Housing Corporation, Ajax Development Office, Ajax. Illus. Unpaged.

BALTIMORE, MD.—Capital Improvement Program for Baltimore. Planning Commission, Dept. of Planning, 400 Municipal Building, Baltimore 2. Aug. 1949. Illus. Tables. 148 pp. $2.

COOK COUNTY, ILL.—Scoring Community Desirability. Housing Authority of the County of Cook, 33 North La Salle St., Chicago 2, Ill. Feb. 9, 1949. Mimeo. 17 pp.

GREENWICH, CONN.—A Study of the Housing Shortage in the Town of Greenwich. Prepared under the auspices of the Housing Authority by Carol Aronovici. 1949. 23 pp.

KALAMAZOO, MICH.—Industrial Land Supply for Kalamazoo City and Township. Publ. by The W. E. Upjohn Institute for Community Research, Kalamazoo. Tables. Map. 18 pp.

LAKE WINNEPESAUKEE, N. H.—A Study of the Lake Winnepesaukee Shore Line. State Planning and Development Commission, Concord. July 12, 1949. Mimeo. Maps. Tables. 39 pp. 50 cents.

LOS ANGELES, CALIF.—Annual Report, 1947-1948. The Regional Planning Commission, 108 West Second St., Los Angeles, 12. Illus. Tables. 24 pp.

NEW HAMPSHIRE—Study of the Problems of Small Towns, A Progress Report to the 1949 Session of the General Court. New Hampshire State Planning and Development Commission, Concord. Feb. 1949. Appendix. 19 pp.

NEW YORK, N. Y.—Construction Progress 1945-1949. The Office of the City Construction Co-ordinator. Sept. 12, 1949. Illus. 44 pp.

——Announcement of Courses in Urban Development, Housing, Planning for academic year 1949-1950. Columbia University, Morningside Heights, New York 27. 22 pp.

PENNSYLVANIA—Know Your Pennsylvania. State Planning Board, Department of Commerce, Harrisburg. Sept. 1949. Illus. Tables. Graphs. 80 pp.

PHILADELPHIA, PA.—Annual Report 1948. Philadelphia City Planning Commission, Market St., National Bank Building, Philadelphia 7. Illus. Maps. 34 pp.

SAN FRANCISCO, CALIF.—Airport Plan for the San Francisco Bay Area. Bay Area Airport Planning Group, 100 Larkin St., San Francisco 2. July 1949. Mimeo. Illus. Tables. 123 pp.

SAVANNAH, GA.—Change of Address. Housing Authority of Savannah. Aug. 1949. Illus. Maps. 40 pp.

UNIED STATES—Planning Advisory Service. Urban Redevelopment Agencies. Information Report No. 4. July 1949. American Society of Planning Officials, 1313 East 60th St., Chicago 37. Mimeo. 17 pp.

——Preparation and Revision of Building Codes. United States Department of Commerce, National Bureau of Standards. Report BMS116, Washington, D. C. Sept. 1949. 17 pp. 15 cents.

——A Study of a Baseboard Convector Heating System in a Test Bungalow. United States Department of Commerce, National Bureau of Standards, Washington, D. C. Aug. 1949. 20 pp. 15 cents.

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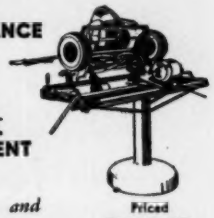

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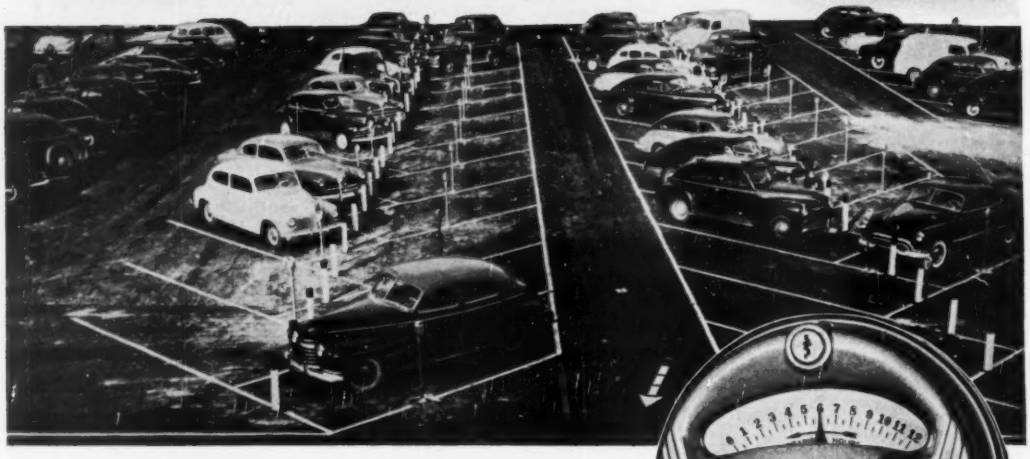

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Other Reports Received

BANGOR, MAINE—Your City Government. Annual Report, 1948. 54 pp.

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CONNECTICUT—The Connecticut Town Meeting. By Max R. White. Institute of Public Service, University of Connecticut, Storrs. Sept. 1949. 35 pp. 25 cents.

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GROSSE POINT PARK, MICH.—Annual Report of Municipal Progress, April 1948-March 1949. 20 pp.

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LETCHWORTH, N. Y.—Life at Letchworth Village. Annual Report for year ended March 31, 1948. State of New York, Department of Mental Health, Albany. Illus. 240 pp.

LEWISTON, IDAHO—Annual Report for fiscal year ending June 30, 1949. Water, Airport, Engineering, Building, Traffic, Streets.

MASSACHUSETTS—Municipal Salaries in Massachusetts, 1948. Massachusetts Federation of Taxpayers Associations, Boston. Tables. Mimeo. 32 pp.

MICHIGAN—Salary and Wage Increases Granted in Michigan Cities of 10,000 population and over since Feb. 1949 as of Sept. 1, 1949. Michigan Municipal League, Ann Arbor, Mich. Mimeo. 2 pp.

MILWAUKEE, WIS.—It's great to live in Milwaukee, Annual Report 1948. City of Milwaukee, Milwaukee Municipal Reference Library, City Hall, Milwaukee. 114 pp.

NORTH CAROLINA—Roster of Municipal Officials in North Carolina. North Carolina League of Municipalities, Raleigh Building Raleigh, N. C., Sept. 1, 1949. League Reports No. 65, 30 pp. $3.

NORTH DAKOTA—Directory of North Dakota Municipal Officials, 1949-1950. League of North Dakota Municipalities, Bismarck, N. D. Myron H. Atkinson, Ex. Sec. July 1949. 31 pp. $3.

RICHMOND, VA.—Report of the City Government. Newspaper Supplement of the *Richmond News Leader*. 12 pp.

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——Optional Forms of County Government in New York. Mimeo. 10 pp. All 3 pamphlets published by the Syracuse Governmental Research Bureau, Inc., Syracuse, N. Y. Aug. 1949.

TENNESSEE—Sanitary Service Charges in Tennessee, 1948-1949. Tennessee State Planning Commission, 432 Sixth Ave. North, Nashville 3, Publication No. 204.

TEXAS—A Debt Manual for Texas Cities. By Lynn F. Anderson. Bureau of Municipal Research, The University of Texas, Austin. 1949. Municipal Studies No. 35. 56 pp. $1.

WISCONSIN—The Conduct of Village Board Meetings. Suggested Rules of Procedure with Annotations. Issued by the League of Wisconsin Municipalities, 30 E. Johnson St. Madison 3. June 1949, Mimeo. 15 pp.

WESTMONT, QUEBEC—Annual Report 1948. Illus. Tables. 58 pp.

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Our patrolmen are very pleased with the performance of the Head and we can further state that a noticeable appreciation by the public has been expressed for the fine service rendered by the Hurricane Head."

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City-Owned Railroad

THE small town of Prineville, Ore., (population 3,000) has been a cattle-shipping point since 1918 and is now a booming lumber center—all due to a municipal railroad. Its tracks may not be as long—only twenty-five miles—but they're just as *wide* as those of other railroads, say the town's inhabitants. They are proud of the City of Prineville Railroad, and are convinced that this municipal venture saved the town.

The railroad project was voted in 1916 when the thousand citizens of Prineville realized that they had been by-passed by the Great Northern and Union Pacific tracks of central Oregon. On March 28 of that war year, they approved the financing of 18 miles of city-owned track to run across the sagebrush and sand to the Great Northern lines. Bonded indebtedness reached a total of $385,000. Construction was delayed for two years because of labor and steel shortages, but the track was completed by August, 1918.

Today, the railroad's income is mainly derived from hauling pine lumber, one trainload leaving each morning and returning in the afternoon with mail and miscellaneous freight. Spurs have been laid to the booming lumber mills, and old sections of track are being replaced. The bonded indebtedness has gradually been cut down through the years, and, during the early part of the war, $30,000 in profits was placed in the municipal coffers to reduce taxes. Although 1945 was an especially bad year because of a prolonged millworkers' strike, a fire at one of the three large Prineville lumber mills, and a washout of some of the grade, profits since then have been good.

C. C. McGlenn, general superintendent of the railroad, has 30 employees on the payroll, including two train crews. Rolling stock consists of two engines, two ballast cars to haul gravel and ties, and one caboose. All freight cars, however, are owned by other railroads.

THOMAS E. RILEY

Crime Marches On

CRIME in cities is up 2.7% over a year ago, according to J. Edgar Hoover, Director of the Federal Bureau of Investigation. Burglaries rose 4.4%, aggravated assaults 4.1%, murders 6.6%, but auto thefts decreased 3.7%.

During 1948, arrests were made in 28.9% of the known offenses. Over 77% of the persons charged by the police during 1948 were found guilty on trial. Data indicate that the police investigation of an average group of 100 murders would culminate in the conviction of 50 persons, while for other crime classes the number of persons convicted out of each 100 crimes committed is as follows: Aggravated assault, 39; rape, 38; negligent manslaughter, 32; robbery, 21; auto theft, 13; and burglary and larceny, 12.

During 1948, municipal police killed in line of duty totaled 64, for a rate of 4.35 per 5,000,000 inhabitants as compared with 4.59 in 1947 and 5.64 in 1946. As of April 30, 1949, police departments of the urban population reported a total of 139,240 employees or 1.89 for each 1,000 inhabitants.

Used Stand-by

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This informative brochure will give you a complete picture of the *CATHODIC PRINCIPLE* of providing complete, lasting protection against expensive, destructive rust. Tells how Harco puts it into operation, how it prevents rust, where it can be used, specifications,—and how to go about putting this information to use in eliminating rust damage. Write to Harco Corp., 2156 E. 4th Street, Cleveland 15, Ohio. Simply ask for *"Stop Steel Tank Rust"* and include name and title, please. There is no obligation, of course.

HARCO CORPORATION

Model Plan...

FOR MODERN PARKING

with **ALFCO TWIN**

AUTOMATIC PARKING METERS

With a model plan for modern traffic control, Alfco Twin Automatic Parking Meters offer you more advantages at less cost than any other meter.

It parks two cars instead of one. It has but one mechanism and one collection box, yet serves two parking spaces instead of one. It cuts maintenance and collection costs in half.

It is more easily policed, provides clearer vision of traffic lanes, thus fewer accidents and traffic holdups.

Note the parking comparison above: the top cars show old style single meter parking. The lower autos illustrate the spacious parking area the Alfco Twin makes possible at no loss in the number of spaces.

Adopt the model plan for modern parking with the new Alfco Twin Automatic Parking Meters. Write for fully illustrated literature at no obligation.

Models available to suit your requirements.

SUBSIDIARY OF...
AMERICAN-LAFRANCE-FOAMITE *Corporation*
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ALFCO

AMA Conference to Discuss City Street and Highway Finance

FINANCING city streets and highways is one of the top subjects on which National Municipal Policy will be decided at the 1949 Conference of the American Municipal Association, in Cleveland, Ohio, November 30, December 1 and 2.

Advance registration indicates that fully 500 municipal officials and state-league representatives will attend the meeting in the Hotel Cleveland.

The Conference will follow the pattern which was so well received as an innovation last year: each major session will consider one subject only, and follow through from presentation of the problem by a panel to open discussion by all the delegates, and finally adoption of a National Municipal Policy statement.

However, there will be more emphasis this year on entertainment. Mayor Thomas A. Burke of Cleveland is chairman of the Local Arrangements Committee. There will be a special program each day for the ladies.

The Association's President, youthful Mayor deLesseps S. Morrison of New Orleans, says that the 1949 Conference will be geared to take full advantage of AMA's growing membership. "We have been picking up speed, members, and power steadily all year. The 1948 AMA Conference in Washington was really the beginning of a new era in national municipal cooperation.

"This year has been a combination of swift action to achieve goals agreed on by cities in the National Municipal Policy for 1949, and strenuous effort to build a more effective organization for achieving these ends. We have many accomplishments to crow about, but this is no time for crowing. Our opportunities have grown in proportion to our power. We must press our advantage.

"We are in a position now to launch a vigorous action program to help cities solve their street and highway financing problems. It's high time a nationally organized attack was made on this critical issue. This attack will be designed and the wheels set spinning at the Cleveland Conference. We know we have the machinery to get results—a unique team of state leagues and major cities."

Making the most of the National Housing Program will also be a conference subject. The "Care and Feeding of Non-Property Taxes" will be another. Discussion on this subject will be focused on these questions: What are proving to be the most useful municipal non-property taxes? What has been the experience of cities which have used them most? What is their future in other areas?

Problems of municipal-state relations will be pegged to the theme, "Do We Need Another Boston Tea Party?" Municipal problems related to employment and economic stability will be analyzed.

How CLEANLINESS is AUTOMATIC with BENNETT WASTE RECEPTACLES

● Everybody is automatically a member of your cleaning department by conveniently placing Bennett Bilt Waste Receptacles to invite their use. These waste receptacles are sanitary, economical and a major help to cleanliness and neatness. *Put them to work for you today.*

ONLY ~~Bennett~~ WASTE RECEPTACLES HAVE ALL THESE FEATURES

- Non-rusting stainless steel feet eliminate rusting and rust marks
- Made of extra heavy-gauge Mayari R, Bethlehem's corrosion resistant steel
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- Reinforced corners
- Strong springs keep doors closed providing greater sanitation and eliminating fire hazards
- Rounded corners for structural strength and pleasing appearance
- Baked enamel finish . . . white or green

These are a few of the many features that make Bennett Bilt Waste Receptacles a natural "buy." Quality and every consideration for hard usage are self-evident both inside and outside of these receptacles.

Write for fully-illustrated catalog TODAY.

Independently hinged doors
High tension springs keep doors closed
Burlap bags or galvanized liners are quickly removed

THE BENNETT MANUFACTURING CO., ALDEN, N. Y.
CUSTOM METAL CRAFTSMEN SINCE 1906

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to keep within your household budget? No! . . . because salt costs so little and does so much.

That's the way it is with

Management Information Service

which costs as little in relation to your city's budget, as the salt on your table in relation to your food budget—yet it is so vital to the efficient operation of a city or town that 539 mayors and managers consider it indispensable!

Mr. Mayor or Manager—any time you are faced with a particularly difficult municipal problem on which you need expert help, and need it AT ONCE—if your city is a subscriber to MANAGEMENT INFORMATION SERVICE all you do is write, wire, or phone us—and the answer is on its way to you the same day. In addition to this invaluable consultation privilege,

MANAGEMENT INFORMATION SERVICE

Established in 1945

Also Includes:

1. Monthly journal on municipal administration. Published since 1919.
2. Municipal Year Book, 582 pages. Published since 1934.
3. Special monthly information reports. Ten of the 68 reports issued to date are:

Methods of Reporting to the City Council
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Pay Rates for Selected City Jobs (Jan. and July)
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Formula for Installation of Street Lights
Establishing Job and Work Controls
Management of Central Municipal Garage
Methods of Keeping City Employees Informed
The Making of Administrative Decisions
Procedure in Establishing the Merit System

Management Information Service is not an experiment. Its value has been tested and proved by 539 cities and towns, with populations from 1,000 to more than one-half million. (Complete list sent on request.) Here are a few typical cities, listed according to population:

Over 100,000—Cambridge, Mass.; Dayton, Ohio; Denver, Colo.; Kansas City, Mo.; San Francisco
50,000-100,000—Columbus, Ga.; Phoenix, Ariz.; Portland, Me.; Schenectady; Verdun, Quebec
25,000- 50,000—Clarksburg, W. Va.; Dubuque, Ia.; Jackson, Mich.; Manchester, Conn.; Raleigh, N. C.
10,000- 25,000—Bessemer, Ala.; Bismarck, N. Dak.; Gulfport, Miss.; Laramie, Wyo.; Sumter, S. C.
5,000- 10,000—Astoria, Ore.; Bozeman, Mont.; Fair Lawn, N. J.; Los Alamos, N. Mex.; Montpelier, Vt.
Under 5,000—Auburn, Calif.; Milford, N. H.; Quakertown, Pa.; Tooele City, Utah; Woodward, Okla.

What Does All This Cost?

You'll be surprised . . . for what would be a prohibitive cost if each city acted independently, actually is only a fraction of one cent of your tax dollar—because of the large number of subscribers. This Service is available to cities, counties, and towns on an annual subscription basis. The population of the city governs the cost of the Service and the number of copies of the Year Book and subscriptions to the monthly magazine you will receive. Do you want to know the cost of this Service to YOUR CITY? We will be glad to tell you the same day your inquiry is received.

Conducted by

The International City Managers' Association

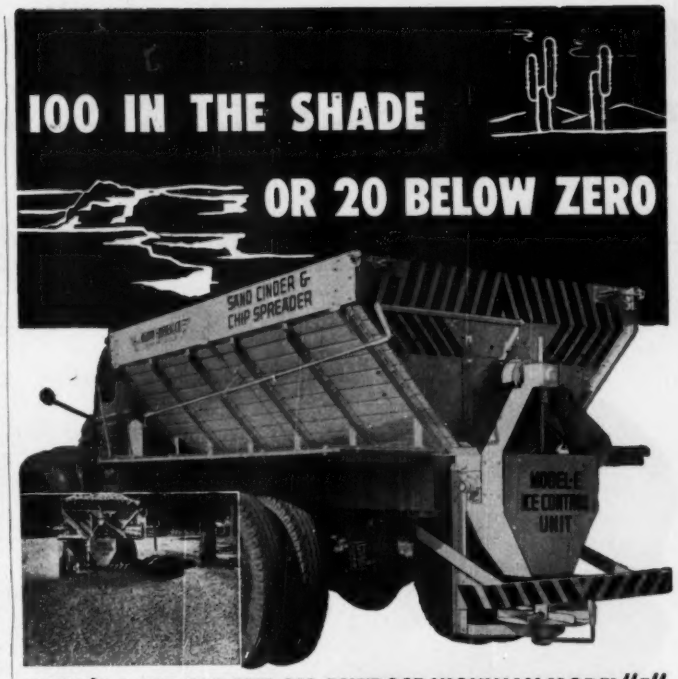
1313 East 60th Street **Chicago 37, Illinois**

Manchester, Mass., Plans

A CAPITAL-EXPENDITURES program which concentrates on simplicity and clarity is contained in a report for the Planning Board of the Town of Manchester, Mass., recently prepared by Frederick J. Adams and Burnham Kelly, planning consultants, of Cambridge, Mass.

The report dispenses with the usual detailed charts of every item of income and outgo, in favor of a realistic analysis of those few items over which the local government has some degree of control, together with the recognition of the unknowns as such in the form of a simple formula. The intention is to permit a ready understanding by the average taxpayer of the two major variables in the picture—the capital program cost and the tax rate. The formula makes it clear to the user that he is at all times dealing with a series of quantities which are strictly variables.

The consultants recommend a six-year capital improvement program amounting to $1,250,000. Major local expenditures recommended include $735,000 for school construction and equipment; a new $210,000 headquarters for the Fire and Police Departments; $500,000 for new pumping machinery and land takings for the Water Department; $5,000 per year for sewer extensions; $110,000 for capital improvements in the highway system over the six-year period; $25,000 over a three-year period for harbor improvements; and an annual allowance of $15,000 per year for miscellaneous capital items.



THERE'S A JOB FOR THE ALL-PURPOSE HIGHWAY MODEL "E"

● Spreading sand and cinders for ice control on streets, highways airport runways, etc. ● Spreading calcium chloride for dust control on secondary roads, parking lots, airports, fair grounds, etc. ● For seal coat work, spreading chips, sand, etc., over newly laid oil or blacktop ● Patch work spreading ● Spreading commercial fertilizers in parks, on lawns ● Hauling crushed rock and chips ● General road and shoulder maintenance

CHECK THESE 14 FEATURES SAVE TIME, MATERIAL, MONEY

1. Uniform spread at all speeds.
2. Covers 2 or 4-lane highway in one operation.
3. Spreads material on highway where needed. No material wasted on shoulders.
4. Operates forward or reverse.
5. Spreads to right, to left, or both sides as desired.
6. Material is cast low to ground—no interference with traffic.
7. Spread may be started or stopped with truck in motion.
8. All controls within easy reach of driver's seat—one-man operation.
9. Material is also spread ahead of rear wheels of truck assuring traction and safety at all operating speeds.
10. Electrically-welded, all-steel frame.
11. Wooden hopper eliminates corrosion from chlorides, assures longer life; also wet material won't freeze to sides in cold weather as is often the case with a steel hopper.
12. Ball-bearing gear boxes, oil-tight, dust and water-proof.
13. Self-unloading, 24"-wide conveyor assures steady material flow.
14. Hopper sides hinged for easier hand loading. Lengths to fit any truck chassis.

MODEL "DD" Motor-Driven Spreader

Clamps onto tailgate of any dump truck. Handles sand and cinders for ice control, calcium chloride for dust control, equally adapted for seal coat work. Does the work of 5 men casting by hand. 1½-h.p. Briggs and Stratton power.

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629 D AVENUE N.W. ● CEDAR RAPIDS, IOWA

MANUFACTURERS OF THE WORLD'S MOST COMPLETE LINE OF SPREADERS

Attention!
City Officials
Refuse dumping areas *DO NOT* need to be a health menace.

CLOROBEN
Supplies the Answer

NO INSECT BREEDING
RAT BREEDING
FOUL SMELLS

Write us for details on how to use Cloroben to give your refuse dumping area a good health record.

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"A community takes a new lease on life when you improve Street Lighting"

Says Mayor **Henry J. DeVette**
of Muskegon, Michigan

"THE installation of adequate street lighting is like a 'blood transfusion' for an entire community," says Mayor DeVette of Muskegon, Michigan.

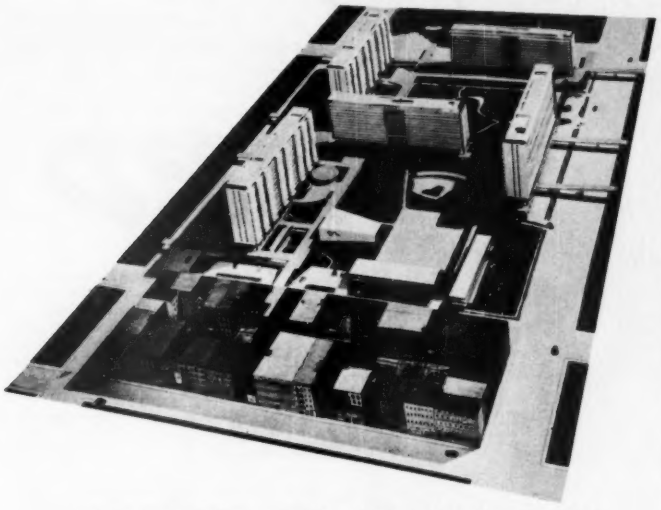
"In addition to contributing to public safety in terms of accident and crime reduction," continues Mayor DeVette, "Modern Street Lighting acts as a *permanent* stimulant to local pride, retail trade and property values. No other single civic improvement will add so much to the life and welfare of a community."

Mayor DeVette is one of the hundreds of conscientious public officials who believe in safeguarding the lives and property of fellow citizens through the medium of improved street lighting.

FOR MORE FACTS
Write for your free copy of "A Planned Program for Better Street Lighting."

The Street and Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, N. Y.

Exhibit on Planning to be Shown In 54 New York High Schools



"Living in the City"—one of the models in the planning exhibit.

PLEASANT conditions for city living, country living, working in office or factory, and shopping centers are depicted in an exhibit, sponsored by the New York Chapter of the American Institute of Architects in conjunction with the Board of Education of New York, which will be circulated to 54 high schools of the New York system for a month at each school.

The exhibit, in four interesting models, was designed and executed under the direction of Olindo Grossi, Chairman of the Department of Architecture at Pratt Institute, with funds made available through the Arnold W. Brunner Scholarship.

Of direct interest to the students of New York who will view the exhibit is a model called "Living in the City," which presents a modern, well-planned city neighborhood as opposed to a model showing one of the common New York blocks. A guide chart explains that it is the responsibility of the students, who will be our citizens in the future, to bring forward some sort of action to achieve such desirable neighborhoods, as opposed to New York's present chaotic conditions.

36 Cities Own Transit Lines

VIRTUALLY half the cities with a population over 500,000 own their transit lines, according to the American Municipal Association. Philadelphia owns 48 of the 67 miles of subway and elevated lines operated within its limits, but leases them out to a private operator. Rochester's subway, constructed at a cost of nearly $13,000,000, also is leased to private operators, as is Newark's subway line. Among the small cities, Brooklyn Village, Ohio, and Bass-A-Grille, Fla., are the only places with a population under 5,000 that own their own transit system. Nine cities in the 5,000-10,000 class have municipally owned transit systems.

Never Before Such COMFORT

in an All-Wood Office Chair!

SIKES

"KRADL-TILT" *Executive Chair*

No. X.31

IDEAL for department heads, supervisors, etc.,—this SIKES X131 Chair combines the warmth, beauty and durability of **wood** with a new conception of **comfortable** seating. The Sikes reverse spring action and "Fixed-Floating" seat (lean back . . . feet never leave the floor!) combats cumulative fatigue with gentle, sure support for **every** sitting position. Simple hand adjustments "customize" chair to every build. Ask for free literature.

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FAST · CLEAN · THRIFTY

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Apply clear chemicals with a THRIFTY "Scotchman". Straight salt—through this unique stainless steel machine—spreads salt seven times faster and 50% cheaper than sand or cinders. The "Scotchman's" thin, wide "bird-shot" salt pattern prevents ice and snow from freezing to pavements; insures fast, clean plowing; eliminates excessive brine.

Save up to $4.25 per treated mile. Prevent clogged culverts, and catch-basins. Enjoy bare, safe pavements.

COMPLETE CONTROL: ***direction, width, and rate of spread.***

WEATHER-PROOFED ENGINE • ELECTRIC STARTER

BAGGED or BULK SALT • USE on ANY TRUCK or PICKUP

Literature? Demonstration?

TARRANT MFG. CO. **EAST AVE., SARATOGA SPRINGS, N. Y.**

Guard

An International UD-18A diesel and generator is the standby unit for the Battle Creek, Michigan, water supply. In case of power failure this unit provides enough power for electric pumps on 15 of the 22 wells in Verona, source of the city's water supply.

Get International Power Units, with matched generators to stand guard against power failure. A sturdy, dependable standby that never sleeps, the International diesel engine is always ready, at a moment's notice, to take over when emergency strikes or to add its power whenever excessive loads demand it.

Your International Power Unit Dealer is ready to supply the "sentry" that will exactly fit your needs. See him for standby generating equipment, or for power units for any other application. Be sure of *dependable* power protection with International power units.

INTERNATIONAL HARVESTER COMPANY • Chicago

CRAWLER TRACTORS
WHEEL TRACTORS
DIESEL ENGINES
POWER UNITS

INTERNATIONAL HARVESTER

INTERNATIONAL INDUSTRIAL POWER

News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

Two Built-In Features On This Snow Plaw

The wear shoes, flush with the ground, prolong the life of the plow's cutting edge. The tripping sub-frame prevents damage to the plow by permitting the plow to jump obstacles.

Walsh snowplows do a clean, thorough job of snow clearing because of two features built into the plow: wear shoes and a tripping sub-frame.

The two wear shoes are set flush with the cutting edge, prolonging its life. Made of Adalloy, a chrome molybdenum alloy, it was discovered in a recent test that products made of this alloy lasted 30 times as long as steel.

The Trip-One-Way is a mechanism consisting of two sub-frames with the bottom hinged to the upper. This allows the plow to jump obstacles without damage, even up to an 8-inch curb. The faster the truck moves, the easier the plow jumps the obstruction. Besides this, the moldboard can be tilted back for deep plowing or tilted forward for speed patroling.

The plow is manufactured by the Walsh Holyoke Boiler Works Div. of the Continental Copper & Steel Industries, Inc., Appleton St., Holyoke, Mass.

Clarke Elected Director Of Philip Carey Mfg. Co.

L. W. Clarke, vice-president in charge of sales of the Philip Carey Mfg. Co., Cincinnati, Ohio, was elected a director of the board.

L. W. Clarke

Mr. Clarke joined Carey in 1935 as insulation department manager in the New York City office. Two years later he became New York district manager; three years ago he was appointed general sales manager, and early this year was given his present position.

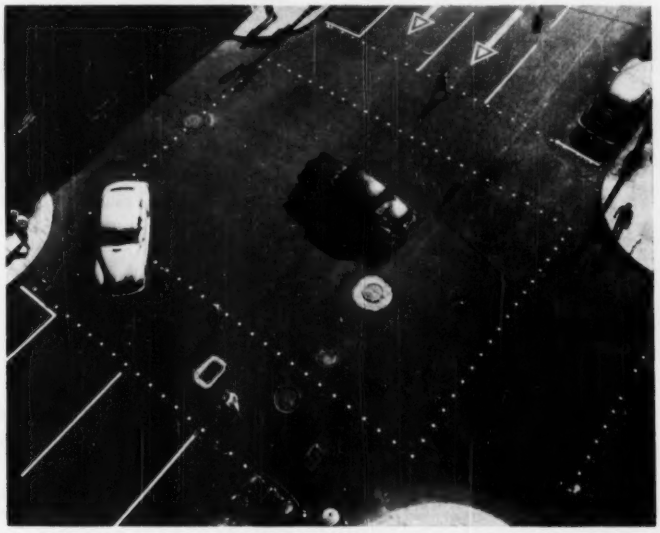
Personnel Changes At Johnston Pump

T. W. Simmons, Jr. K. G. Lundie

At the Johnston Pump Co., Los Angeles, Calif., T. W. Simmons, Jr., has been elected vice-president, and Kenneth G. Lundie has been appointed general sales manager.

Until recently, Mr. Simmons was president of the Johnston Aquamatic Co., of York, Pa. Mr. Lundie has been connected with sales in the turbine pump business for over 25 years. Formerly he was western sales manager of the Pomona Pump Co., Pomona, Calif., and in charge of sales for the C. J. Hammer Co. of Visalia, Calif.

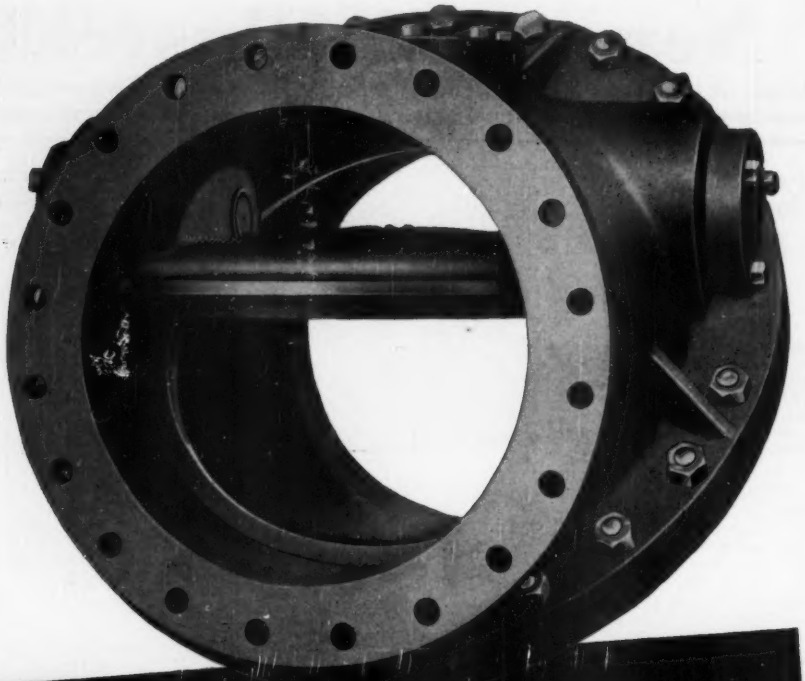
Cut Street Marking Costs



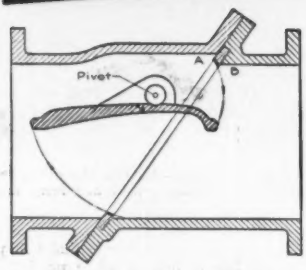
A bird's-eye view of the protection afforded pedestrians by Dur-O-Line markers. The markers are plainly visible, do not fade in color, and are long lasting.

Dur-O-Line markers are constructed of tough plastic permanently color molded in brilliant yellow or dead white, and a two-man crew can lay 100 markers per hour. Visible under all weather conditions, these markers are attached to asphalt or concrete by means of a special adhesive and an easily installed metal pin. There is no traffic hold-up and the cars may run over the markers as soon as the workmen have completed their application.

The major advantage that this product has is that there is no fading or dulling of the line due to wear, as occurs in painted traffic lines. And according to the manufacturer, the Traffic Safety Supply Co., 2700 N. E. Sandy Blvd., Portland 12, Ore., two years of paint and labor costs will pay for all the expenses of marking your streets with Dur-O-Line.



THERE IS *No Slamming* WITH CHAPMAN TILTING DISC CHECK VALVES



Cross-section of the Chapman Tilting Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

BECAUSE of the design of the balanced hinge-pinned disc, Chapman Tilting Disc Check Valves always close smoothly and quietly. There is no slamming, no hammering, no destructive pipe-line stress.

When open, the disc rides smoothly in the flow. As it closes, the effect of the stream on the short flap cushions the contact with the body seat. There is no sliding action and therefore wear on seats is reduced to a minimum. In addition, head losses are lowered as much as 65% to 80% over those experienced with conventional type check valves.

Available in either iron or steel.

The Chapman Valve Mfg. Co.
INDIAN ORCHARD, MASS.

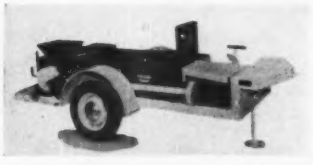
Lightweight Tree Saw Cuts, Fells, Bucks

The Mall Tool Co., 7725 South Chicago Ave., Chicago 19, Ill., has developed a lightweight tree saw that will cut off branches up to 12 inches in diameter at heights up to 15 feet above the ground. In addition, the saw fells,

bucks, and limbs trees up to 24 inches in diameter. Detached from the pole and used as a hand-power saw it cuts heavy piling and timbers.

Weighing 11 pounds, the saw operates from 110-volt, 60-cycle or direct current light circuit, or it may be powered by a 750-watt gasoline-engine generator.

Patchwork on Paving Is Quick, Economical



The Patchmobile, manufactured by Wylie Bros., Inc., 1840 W. Reno, Stockyards Station, Oklahoma City, Okla., produces a hot patch material with lasting qualities. The tool heating compartment, built into the machine, gives properly heated tools for smoother repairs.

Designed for sand drying and heating, asphalt heating and melting, and hot aggregate mixing, the Patchmobile is powered by a gasoline engine and is equipped with a 20-gallon pressure tank. The average output is 1 ton per hour, and the pugmill capacity is 3 cubic feet per batch.

The machine makes it possible to heat, mix, and lay hot asphalt patches 1½ inches thick at a total cost as low as 60c a square yard. Portable and compact, this complete asphalt plant permits speedy repair to the heaviest traffic artery without closing of streets or detours of traffic.

Younger Promoted

A. Myles Younger has been elected vice-president in charge of sales for the Atlas Mineral Products Co., Mertztown, Pa. With the firm since 1939, Mr. Younger has held the positions of chemical engineer, Midwest sales Manager, plant manager for the California plant, general manager of the Texas division and general sales manager of the Pennsylvania company.

A. M. Younger

Big Beam 400-F ELECTRIC FLARE

Night wrecks and accidents caused by hazards and barricades can be averted by warning lights and emergency flares. There are a thousand such uses for the Big Beam Electric Flare with red Fresnel lens. Dependable in any weather, set or hang anywhere in any position, knocking over will not interfere with its operation. A flip of the switch gives the choice of either a steady or a flashing flare. Interchangeable clear Fresnel lens converts it to a regular lantern. As easily serviced as a flashlight. *See your supplier, or write direct*

U-C LITE MANUFACTURING CO.
1056 West Hubbard Street, Chicago 22, Ill.

DESIGNED FOR SAFETY

BUILT FOR SERVICE

EST. 1856 McDonald

McDONALD GAS SERVICE STOPS

Manufactured on finest precision machines, McDonald gas service stops are the best that 93 years experience and craftsmanship can produce. Good threads make installation quicker. Proper design assures effective seal and longer life. For safety and dependability rely on McDonald.

Write for complete literature and prices

E-10685. McDonald Gas Service Stop. Flat Way. Iron body, heavy pattern, flat head. Black or galvanized. Bronze plug, nut and washer. Sizes — ½, ¾, 1, 1¼, 1½, and 2 inches.

E-10687. McDonald Gas Service Stop. Flat way. Heavy pattern. Iron body. Has flat head, lock wing, bronze plug, nut and washer. Black or galvanized. Sizes — ½, ¾, 1, 1¼, 1½, and 2 inches.

EST. 1856 McDonald

A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA

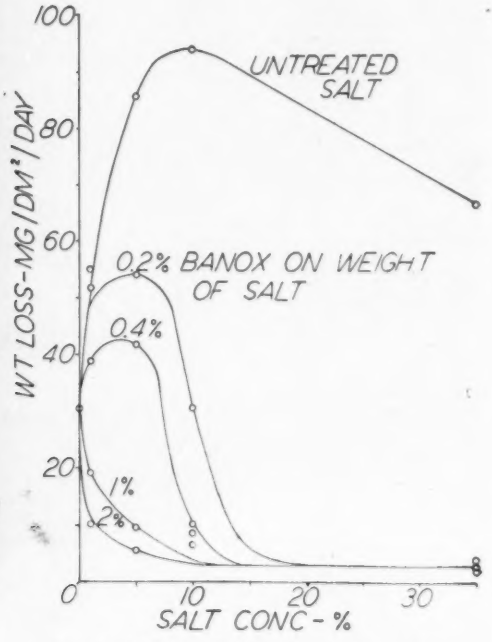
BRASS GOODS • PUMPS • OIL EQUIPMENT

Field . . . or Laboratory

—tests show that Banox* stops salt-slush corrosion

Photograph above shows how the field test panels were carried on the front fender braces of police cars.

LAST winter—the first year in which Banox was offered as a corrosion inhibitor for use with salt for snow removal—approximately 50 communities used Banox, either experimentally or for the treatment of a major portion of their de-icing salt. Motorists, complaints were absent, results were uniformly favorable, even in cases where the percentage of Banox premixed with the salt was erratic or considerably below the recommended proportions. To supplement the field tests, additional laboratory tests were conducted, using varied salt concentrations and different proportions of Banox and salt. Results of these tests are shown by the curves below.



Corrosion-inhibiting effect of Banox in various concentrations. As the curve shows, a 1% or higher concentration of Banox virtually eliminates metal corrosion in sodium chloride brines.

Full information on results obtained by using Banox with de-icing salt will be sent on request. Use Banox in your community this winter and enjoy the benefits of salt without the complaints.

*T.M. Reg. U.S. Pat. Off.

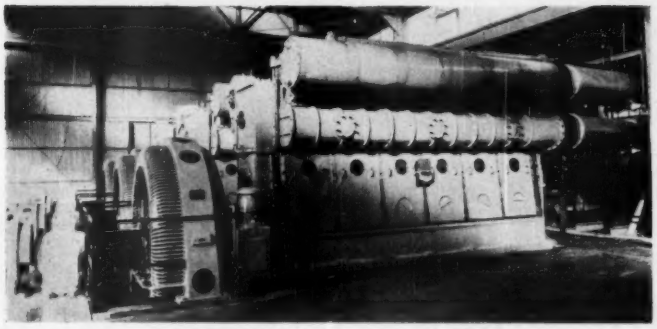
HAGAN HALL BUROMIN CALGON

calgon, inc.

A SUBSIDIARY OF HAGAN CORPORATION

HAGAN BUILDING PITTSBURGH 30, PA.

Lima-Hamilton Redesigns Diesel



The Hamilton Series 21-SA diesel engine manufactured by the Hooven, Owens, Rentschler Co. Division of the Lima-Hamilton Corp., Hamilton, Ohio, has been redesigned to provide 38% more horsepower per cylinder for stationary service and to provide dual-fuel operation with fast changeover from gas to oil and oil to gas.

The 2-cycle engine with 21½-inch bore and 27½-inch stroke is now rated for 60-cycle generating sets at 520 hp per cylinder, 277 rpm. This is the net power developed at 100% load—the power available at the shaft after allowing for blower requirements.

The 38% increase in hp has been obtained with no increase in compression or firing pressures.

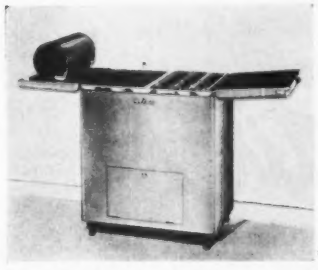
Principle changes incorporated in the Hamilton 21½ by 27½ for stationary service include:

Placement of the rotary valves in the exhaust outlets which close while the intake ports are closing, entrapping a 40% larger volume of air available for burning more fuel.

Enlargement of the combustion chamber with change in the shape of piston and head, which permits better scavenging and no increase in the compression pressures.

Intercooling of the scavenging air, and automatic throttling of the intake of the blower at reduced loads, thus keeping the blower horsepower in line with air requirements.

Compact Photo Copier



A portable all-in-one photo-copy outfit that occupies only 26 by 16 inches of floor space is offered in place of the customary space-consuming assemblage of contact printer, dryer, and developing and fixing pans used for office photo-copying.

When the top of the cabinet is opened, the contact printer is ready for instant use. Prints are then placed into stainless steel holders and quickly developed and fixed merely by inserting them into the proper slots. An electric dryer compartment completes the process which, in a few seconds, produces copies of letters, drawings, photos, documents, records, and forms up to legal size.

The APECO Cabinet photo copier is manufactured by the American Photocopy Equipment Co., 2849 No. Clark St., Chicago 14, Ill.

BRAXMAR BADGES

Standard Badges Since 1879

Write for circular illustrating badges for Police, Fire and other City, County and State Officials

John O. Veit, Pres.

C. G. Braxmar Co., Inc.

216 E. 45th St., New York 17, N. Y.

LITTLE GIANT

POWER SWEEPER

Cuts Your Clean-Up Costs in HALF!

Removes dirt and debris . . . sweeps snow . . . prepares street surface for asphalt paving. Cuts labor costs to the lowest dollar . . . quickly pays for itself. Dependable, time-tested unit . . . hundreds in use. PRICED LOW!

ONE MODEL FITS ALL TRACTORS

Adjustable rotary broom sweeps at any angle. Use with any tractor . . . driven by power take-off—the tractor furnishes the power. No separate engine to maintain, no operating engineer required on the broom. No clutches or friction drive to wear. Variable broom speed to meet all sweeping conditions. Gears sealed in oil. 5, 6, 7, 8 and 9-foot brooms. Sprinkler attachment available.

Let Our Sales Engineer Help Solve Your Sweeping Problems.

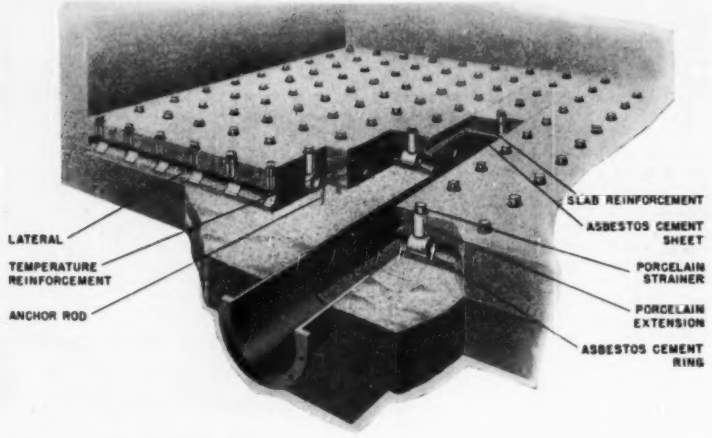
Write, stating your needs. Get complete information, prices. Immediate delivery.

Little Giant Prod. Inc.
1585 N. Adams St., Peoria, Ill.

Attention— All gravity filter Plant Engineers!

THE NEW PERMUTIT® MONOCRETE UNDERDRAIN

Easy to install... non-corrodible!



Check these Advantages:

- All parts of the underdrain are non-corrodible.
- All strainers are located in the same horizontal plane.
- Large laterals and header assure uniform collection and distribution of water.
- Strainers are uniformly spaced regardless of filter dimensions.
- Inexpensive and easily constructed.
- The monolithic construction is rigid and rugged.

The Permutit Monocrete Underdrain is of monolithic construction, the header and laterals consisting of conduits cast in concrete. Porcelain extension stems extend from the header and laterals to the top surface of the concrete; heavy porcelain strainers are screwed into these stems. The laterals are formed by specially designed inflatable rubber tubes which are removed after the concrete has set. The top slab of the header is then poured, using asbestos-cement sheet forms which are left in place.

For full information about this remarkable new unit, write to The Permutit Company, Dept. A-11, 330 West 42nd St., New York 18, N. Y., or to the Permutit Company of Canada, Ltd., Montreal.

Permutit

WATER CONDITIONING HEADQUARTERS FOR OVER 35 YEARS

New Spreader on the Market

A spreader for hot- or cold-mix asphalt or stone base courses is a recent addition to the line of asphalt equipment made by the W. E. Grace Mfg. Co., Dallas 15, Texas.

The device, which is especially suited for driveways, parking areas, and widening projects, works in close quarters

and is drawn by a truck which dumps its load in the spreader and travels forward to enable spreading of the material.

Attachment to almost any make truck is possible by a quick-acting hitch clamped to the truck axle. Wheels, carrying two six-ply tires, adjust vertically to take part of the load, provide a leveling action, and raise the spreader clear of the surface for transporting or backing. The depth of the spread is adjustable from 1 to 8 inches.

Widths furnished are 7 and 9 feet, and blocking to a smaller width is easily accomplished. The spreader may be obtained on special order in 4- or 5-foot widths for work where over-all width must be kept below 8 feet.

Low-Cost Dump Body, Hoist

Woodson Products, 4200 E. Nevada, Detroit 12, Mich., has announced its production of a low-cost dump body and hoist for pick-up trucks of ½, ¾, or 1 ton.

The vertical hoist used in the Woodson Dumper allows easy installation without alteration to the truck chassis or equipment mounted on it. It provides low mounting of the body and also lifts the load at lower hydraulic pressures than would be required with an underbody hoist.

Measuring 80 inches long, 66 inches wide, and 16 inches deep, the body has a tailgate with a sliding door in it for bin loading, and stage pockets are provided for extending the sides.

Two types of power drives are available: mechanical hydraulic and electric hydraulic. The former consists of a pump driven by the driveshaft from a power take-off mounted on the truck transmission. The power take-off is thrown into operation by pulling a dash-mounted control handle and the body is then raised and lowered by means of a lever mounted on the pump. This type of drive can only be used on trucks with power take-off openings in the transmission.

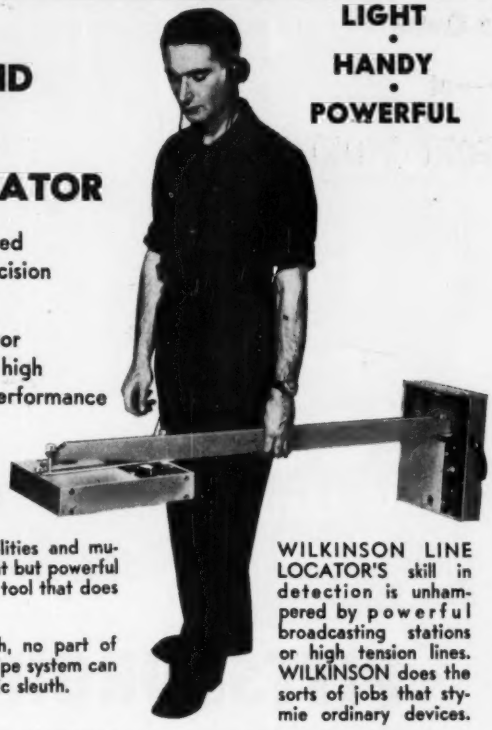
The electric-hydraulic drive eliminates the power take-off and driveshaft; this unit consists of a pump direct driven by a 6-volt d.c. motor. A one-ton load in the body draws only 85 amps for 40 seconds when raised to full dump position so that only 1/100th of the truck battery capacity is used. The body is raised by pushing a button, and lowered by turning a relief valve handle. In both types of drive, the body may be stopped, and will hold, at any position from full-down to full-dump positions.

ONE-HAND
Quality
LINE LOCATOR

LIGHT
•
HANDY
•
POWERFUL

A soundly designed sturdily built precision locator

The *Quality* locator that has set new high standards for performance



WILKINSON
LINE LOCATORS

used by leading utilities and municipalities. It is light but powerful —a simple one-man tool that does EVERY job.

Regardless of depth, no part of your underground pipe system can escape this electronic sleuth.

WILKINSON LINE LOCATOR'S skill in detection is unhampered by powerful broadcasting stations or high tension lines. WILKINSON does the sorts of jobs that stymie ordinary devices.

Equip with a PROVEN *Quality* Professional Instrument

WILKINSON LINE LOCATOR

LIGHT • COMPACT • POWERFUL

Write for complete literature and prices

Originators of lightweight, all-purpose quality Locators.

WILKINSON PRODUCTS CO.

P. O. Box 1774, Wilshire-La Brea Station, Los Angeles 36, Calif.

This servant
wears
a Crown
—at
FORT WORTH, TEXAS

PITTSBURGH • DES MOINES

Elevated STEEL TANKS

New beauty . . . new efficiency in large-capacity elevated tank design by Pittsburgh-Des Moines! This handsome *Obloidal* Elevated Steel Tank stores 1,000,000 gallons of water with a head range of 25 feet. 88 feet in diameter, on an 88-foot tower, the gleaming crown of this new tank is visible new evidence of *modern water storage* for Fort Worth.

Do you have our new Elevated Steel Tank brochure?

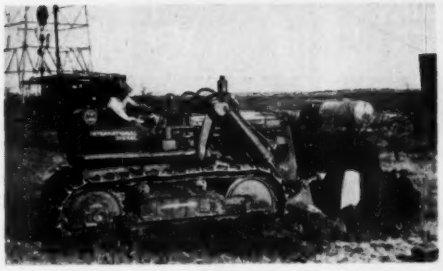
PITTSBURGH • DES MOINES STEEL CO.

Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH	3412 Neville Island	DES MOINES	913 Tuttle Street
NEW YORK	Room 915, 270 Broadway	DALLAS	1217 Praetorian Bldg.
CHICAGO	1216 First National Bank Bldg.	SEATTLE	920 Lane Street
SANTA CLARA, CAL.	619 Alviso Road		

Two New Models of International Diesel Crawlers



The TD-14A with bull-dozer blade starts to dig a slush pit.

The International Harvester Co., Chicago 1, Ill., is manufacturing more powerful "A" models of the International TD-18 and TD-14 diesel crawler tractors. These new models have greater work capacities and incorporate a number of new features designed for increased operator comfort and longer trouble-free service.

The heavy-duty TD-18A has 87 drawbar hp, compared with 80.5 in the previous model. Net engine hp at the flywheel, which was 97 in the last model, is now increased to 107, and belt hp has been raised from 91.5 to 101.

Drawbar pull is at 22,400 pounds in first gear with the engine operating at maximum torque. For improved traction, wider 20-inch shoes are now standard. This model has six speeds forward, to a high of 5.7 mph, and two reverse, up to 3.5 mph.

In the TD-14A, hp has been increased to 76 at the engine flywheel, 60.5 drawbar, and 72 belt. With the added power, this tractor has higher maximum drawbar pull of 16,600 pounds in first gear. The TD-14A has the same speeds as the TD-18A.

Both tractors have spring boosters on the steering clutch hand levers for greater ease of operation, a closed cooling system that prevents loss of coolant when the tractor is working on a steep grade, and oil filters designed to cut maintenance costs by extending the usual oil change period from 100-hour change period to 240 hours of operation. An airtight radiator cap and a low-pressure valve in the overflow pipe seal the cooling system and prevent liquid from spilling out.

Gottwald Asst. Sales Mgr. For the Rockwell Mfg. Co.

H. Gottwald has been appointed assistant sales manager of Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa., and his main job will be that of supervising and coordinating contacts and activities in connection with valve jobbers.

H. Gottwald

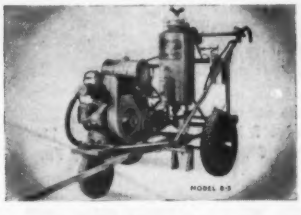
The Rockwell Co. recently was awarded the trophy for the best 1948 annual report of the metal products industry in the Financial World Annual Report Survey.

Gar Wood Promotes Blakeslee

W. S. Blakeslee, Jr., has been promoted to the position of assistant general sales manager for Gar Wood Industries, Inc., Wayne, Mich.

Before this appointment, Mr. Blakeslee was sales manager of the Wayne Division. R. J. Nymberg will now fill this position.

Products of the company include hydraulic hoists, dump bodies, winches, cranes, and the Load-Packer refuse collection unit—all designed for installation on any make of truck chassis.



All-Purpose Striper
Solves Zone-Marking Problem

Self-propelled and completely self-contained, designed to meet the needs of city and town street departments, airports and highways, for accurate high-speed striping.

Clean-cut, attractive lines are assured with K-C Air Curtains. Air actuated traction up to 5 mph with a trailer for the operator. Truck-mounted and other models are available for all requirements. Write for illustrated folder.

KELLY-CRESWELL CO., Xenia, Ohio

Bury it and Forget it!

If you will think before buying a valve—you can eliminate thinking of it forever after. When you think of valves—think of the years of time and effort we have put into giving you a smooth-operating, trouble-free valve. Think of the progressive water works men who have relied on Eddy Valves for years—then specify and insist on getting Eddy Valves—you can bury them and forget them.

EDDY
VALVE COMPANY
WATERFORD NEW YORK
A subsidiary of James B. Clow & Sons

IF IT ISN'T ACCURATE IT ISN'T SIMPLEX

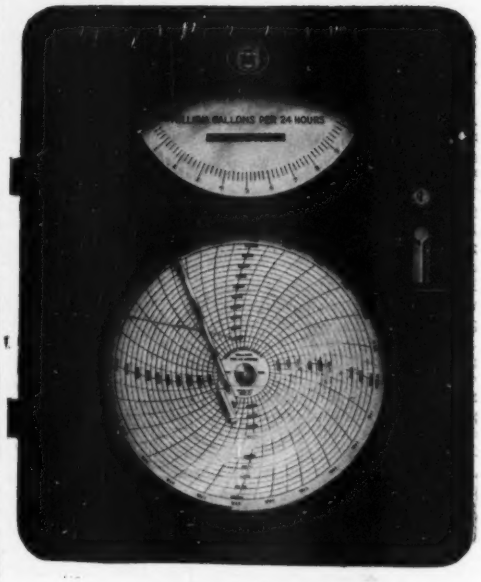
We of Simplex believe the discerning engineer requires accuracy above all other things in any instrument he purchases. If the word "Simplex" could be translated into modern language it could well mean accuracy, for that is the primary feature of all products bearing this name. While we are concerned with long life, continuous operation, and modern appearance, we nevertheless stress and stress again the most important point of all – accuracy. In presenting the type H meter, we confidently offer to the industry an instrument which fulfills this feature to an extremely gratifying degree.

NEW TYPE H METER

Most accurate yet developed within its flow range

ACCURATE within ± 2% at any point over flow ranges up to 10 to 1, the meter is designed for:

- Use with Venturi Tube, Flow Nozzle, or Orifice Plate.
- Measurement of hot or cold water, process liquors or gases.
- Outdoor or indoor mounting, using the same instrument for both conditions.
- Inclusion of three vital measuring elements—indicator, recorder, and totalizer.
- Wall bracket, instrument panel, or floor mounting as desired.
- Even spacing of the indicator dial and recording chart graduations for ease of reading at high or low flow rates.
- Testing in place at any time with an easily applied manometer test device.
- Change of differential pressure maximum by use of a different float without change of cylinder.
- Maximum differentials of 114" or 64" of water as desired.



Write for Bulletin No. 400 to
Simplex Valve & Meter Company, Dept. 11
6789 Upland Street, Philadelphia 42, Pa.

If it isn't ACCURATE it isn't SIMPLEX

SIMPLEX
VALVE AND METER COMPANY

Tractor Snow Plow Has 4-Wheel Drive

The Frank G. Hough Co., 710 Sunnyside Ave., Libertyville, Ill., has an-

Four-wheel drive enables this machine to operate over slush or ice.

nounced that both V and reversible-blade snow-plow attachments are now available for the big four-wheel drive, 1½-cubic-yard Hough Model HM Payloader.

Since the plows interchange with a bucket, the tractor shovel is equally useful in the construction season for digging, loading, earthmoving, and material-handling work.

Powered by a 75-hp gasoline or diesel force driving all four wheels, the machine is further equipped for heavy work by its large pneumatic earthmover tires that provide tremendous traction, instant hydraulic power control for raising and lowering the plow, four speeds in each direction up to 24 mph, instant and separate forward-reverse shift, power-boosted rear-wheel steering for fast maneuvering, and powerful hydraulic brakes.

Buffalo-Springfield Appoints J. McTeague

James McTeague has been appointed assistant sales manager by the Buffalo-Springfield Roller Co., Springfield, Ohio.

J. McTeague

Since coming to the firm in 1945, Mr. McTeague has been connected with the service department as assistant service manager. In his new position he will assist the sales director in co-ordinating the domestic and export sales functions of the company.

N. Y. C. Office For Ward LaFrance

A new York City office has been established at 52 Broadway by Ward LaFrance International, Inc., Elmira, N. Y. This office is managed by M. L. Fitzpatrick.

The NETCO CATCH BASIN CLEANER

With Pneumatic Controls

A Necessity For Every Municipality

- Simple
- Positive
- Powerful

PNEUMATIC BUCKET

Although it has large capacity, the Netco Bucket will operate through an opening as small as 16 inches. This Bucket will easily remove sticks, stones, bottles, wire, and other such debris from all catch basins.

These Cities and Many Others Own One or More

Netco Catch Basin Cleaners

Boston, Mass.
New York City, N. Y.
Indianapolis, Ind.
New Brunswick, N. J.
Harrison, N. J.
East Cleveland, Ohio
Binghamton, N. Y.

- **The Netco Catch Basin Cleaner can be mounted on any short wheel base truck having at least 8 ft. in back of cab. You can purchase unit separately and mount on your own chassis.**
- **The Netco Unit can be removed from truck and chassis in 30 minutes.**
- **The Netco can be operated continuously because the material removed from catch basins is loaded into other trucks. This unit will average 20 to 30 catch basins per 8 hour day.**
- **The Netco Bucket closes pneumatically, assuring positive and maximum digging efficiency.**
- **Positive and simple control of pneumatic bucket, boom swing, hoist clutch and boom brake by compressed air.**
- **The Bucket is lowered and raised by one cable. Only one hose is required to close it, and it is opened by powerful spring action.**
- **The Netco has a hoisting capacity up to 1500 lbs.**

For Complete Details Contact

NETCO DIVISION
CLARK-WILCOX COMPANY
118 Western Avenue
Boston 34, Massachusetts

THERE WAS AN OLD CITY...

THE problem of the old woman who lived in a shoe has been dumped in the laps of American city planners. What to do about the continuing expansion of industry . . . the rapid growth of urban populations?

Modern, up-to-the-minute map information is the first step toward the answer. In most cities, existing maps have long ago outgrown their usefulness and the cost of collecting new map data is high in terms of time and money.

Aerial photography, however, can solve your mapping problems swiftly and economically. *At less than half the cost* and in a fraction of the time required of ground surveys, AERO's exclusive glass plate process is providing the city of Cleveland with aerial topographic maps that meet the most rigid demands of engineering accuracy.

Precision aerial maps by AERO can help you plan your city's future with the finest map facts available to science . . . at the lowest possible cost to the taxpayer.

Let AERO's engineers bring thirty years of photogrammetric experience to your city planning staff. It will help you build a better place to live in. Write Aero Service Corporation, today.

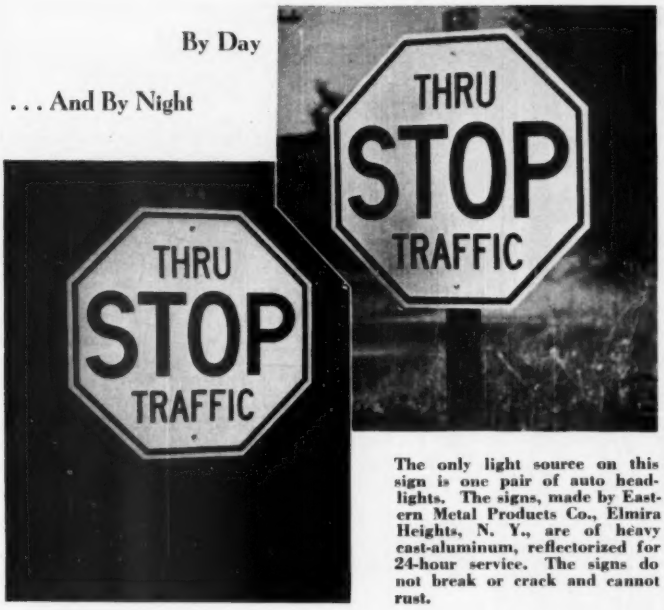
AERO MAPS THE FUTURE

AERO
SERVICE CORPORATION
236 E. COURTLAND ST., PHILA. 20, PA.
Oldest Flying Corporation in the World

TOPOGRAPHIC MAPS • PLANIMETRIC MAPS • PRECISE AERIAL MOSAICS • AIRBORNE MAGNETOMETER SURVEYS • RELIEF MODELS • COLOR PHOTOGRAPHY

By Day

. . . And By Night



The only light source on this sign is one pair of auto headlights. The signs, made by Eastern Metal Products Co., Elmira Heights, N. Y., are of heavy cast-aluminum, reflectorized for 24-hour service. The signs do not break or crack and cannot rust.

Harley-Davidson Adds Salesmen

R. I. Pease, Jr. **R. D. Matteson**

The Harley-Davidson Motor Co., Milwaukee 1, Wis., has engaged Roy D. Matteson to cover the territory of Michigan, Northern Indiana, and parts of Ontario, Canada, and Roscoe I. Pease, Jr., has been appointed salesman for the territory of New York, northern Pennsylvania, and Ontario and Quebec.

Owen Opens Office

Mark B. Owen, formerly partner in the firm of Moore and Owen, consulting engineers, Indianapolis 2, Ind., has recently announced the establishment of an office under his own name in that city at 1920 N. Meridian St. Robert L. Meek will be associated with him.

Mr. Owen was formerly Director of Public Works, Dearborn, Mich., and later chief engineer of the Nichols Engineering and Research Corp. During the war he was retained by the American Society of Civil Engineers for a special study of post-war engineering planning.

Get Ready for Winter with HAUCK HEATERS

Burn Kerosene or Light Fuel Oil

HAUCK CONCRETE HEATER

Heats aggregates speedily, uniformly in tilt or non-tilt drums while mixing. Simple, easy to run. Burner detachable for thawing and melting jobs.

HAUCK WATER HEATER

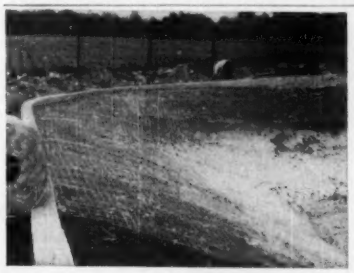
For fast heating large quantities of water for concrete mixers or central mixing plants. Conical water heating coil with hot water recirculation system in tank; powerful smokeless heating burner; fuel tank with hand pump and hose.

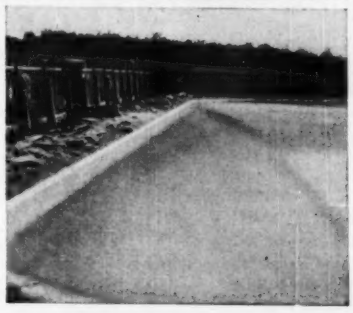
HAUCK SALAMANDER

Distributes heat over large area; portable, clean, smokeless. Heavy duty heating chamber complete with burner, fittings, hose and hand pump type, welded steel fuel tank.

Also get Catalog on Torch Thawing Outfits; Steam Thawers, Ground Thawers, Tar Melting Kettles, Lead and Compound Furnaces, etc.

HAUCK MANUFACTURING CO.
112-122 Tenth St., Brooklyn 15, N. Y.





NO MAINTENANCE IN 24 YEARS

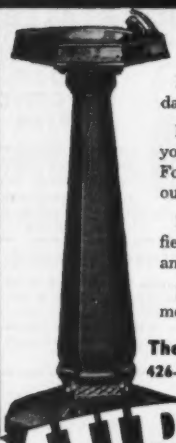
The before and after photos show a reservoir we re-lined with "GUNITE" in 1925 for the Village of East Aurora, N. Y. Recently Mr. V. E. Haemmerlein, Village Engineer, wrote us:

"The job you did of Guniting our reservoir is still in first class condition. Some hair cracks have developed near the top. I drilled one-half inch holes where some of these cracks showed but find that they are only about one inch deep. They do not go beyond reinforcing. We have had no maintenance whatsoever."

We can similarly solve your problem if you have an old leaky or disintegrated reservoir. We invite you to call on us for complete information, recommendations or estimates on any "GUNITE" work which you may be planning.

Many instances of repair, remodeling and new construction with "GUNITE" are described and pictured in Bulletin D2400. A request on your letterhead will bring your free copy by return mail.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA. U.S.A.
MANUFACTURERS OF THE CEMENT GUN



WE'RE IN 1950!

Production plans and delivery dates are in 1950!

How is your program? Are you adding Outdoor Drinking Fountains? Are you replacing outworn Hydrants?

If you want deliveries on specified dates, co-operate with us and we will co-operate with you.

Let us have your 1950 requirements NOW!

The Murdock Mfg. & Sup. Co.
426-430 Plum St., Cincinnati 2, Ohio

MURDOCK

OUTDOOR DRINKING FOUNTAINS
HYDRANTS
STREET WASHERS

Smith-Gray NEW YORK

NEW POLICE OVERCOATS

that provide comfort and warmth without weight.

Inquire About Our
JEN-CEL-LITE
Lined Overcoat

Jen-Cel-Lite INSULATED

SMITH-GRAY CORP.
740 Broadway, New York 3
Makers of Uniforms Since 1845

Aeroil THAWING TORCHES

No delays, shut-downs, or tie-ups from ice, snow, cold or sleet when you have an Aeroil Thawing Torch handy. Each torch produces a frost-killing temperature of 2000 deg. F and uses only 6% fuel and 94% air. Manufactured in several sizes to fit different requirements. Especially valuable for thawing out pipes, culverts, unloading cars of coal, sand, gravel, thawing switches, preheating engines, etc. Send for leaflet 294A.

ASPHALT KETTLES

Check your asphalt kettle requirements for Spring

Aeroil specializes in asphalt heating equipment for cities, counties and states. Stationary and portable units of all types from 40 to 500 gallons capacity. Bulletin 340A.

SEWER COMPOUND POTS

Special Oil-Burning Pots for heating lead, sewer pipe compound, and other materials for sewer and water pipe work. Torch units removable. Bulletin 232A.

AEROIL PRODUCTS COMPANY, INC.
5 Wesley Street — South Hackensack, New Jersey
Chicago, Pittsburgh, Seattle, Dallas, Los Angeles, San Francisco, Jacksonville

New . . . Permanent

HOLD EVERYTHING!
SEE THE NEWEST AND BEST

LAKE SHORE

PERMANENT ALUMINUM STREET SIGNS

LOW COST — NO MAINTENANCE
VISIBLE DAY & NIGHT

Wire or Write Today for Complete Information

Catalog #20-5 Illustrated

LAKE SHORE MARKERS
Div. of Lake Shore Pattern Works
654 W. 19th Street, Erie, Pa.

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured — No Large Bell-holes to Dig
Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each.
Leadite tested and used for over 50 years ● Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

THE LEADITE COMPANY
Girard Trust Co. Bldg., Philadelphia 2, Pa.

DISTRIBUTORS
WANTED

Tremendous opportunity for live, well-established concerns now calling on municipal governmental executives and business men's associations, to sell Post-Lites, the new Radiant White-Way Street-Lighting for business districts. Lighting experience not necessary. (See our page advertisement this issue).

Write at once, stating qualifications and experience in dealing with village, town and city officials; size of organization and territory covered intensively.
Address, Mr. W. H. Long, 114 West Illinois St., Chicago 10, Ill.

Dentless-Fender Parking

Whether diagonal or parallel parking, there's ample room in Sussex, N. J.

Shop in Sussex and save your fenders. That is the slogan Mayor Charles O. Couse of Sussex, N. J., thought of adopting after experience with 62 Alfco Twin parking meters manufactured by International Meters, Inc., 41 E. 42nd St., New York 17, N. Y. Acute congestion has been greatly relieved, and local people and visitors praised the ease with which they could park. Weekly collections averaged $150, or $2.42 per meter.

Carbon Dioxide Fire Truck

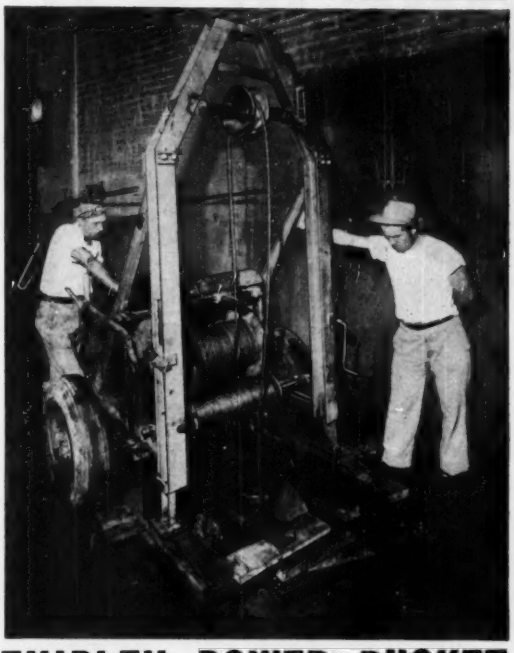
A compact carbon-dioxide cylinder and hose reel unit that can be easily installed on 1-ton truck bodies for mobile fire protection at airports and for use by municipal fire departments is offered by Walter Kidde & Co., Inc., Belleville, N. J.

Big Transit Crane Mounted on Rubber

The Bucyrus-Erie Co., South Milwaukee, Wis., has begun production of the new 22-B transit crane, which comes on a 142-hp Sterling mounting that has a 181-inch wheelbase 8 feet wide. Some features of the base are two double box outriggers that provide additional support, full-vision truck cab, air brakes, Timken-Detroit axles, optional hydraulic booster steering, and 12-speed transmission.

A new crane-type boom for lifting crane, clamshell, and dragline operation, has been designed to combine strength and length. Removable inserts may be used to increase the standard 30-foot boom to an 80-foot boom in lifting crane service. For traveling, the long booms are quickly folded with special equipment. Both hoist line and boom lowering are power-controlled to insure safe crane operation. An additional safety feature on the lifting crane is the boom stops which prevent raising the boom beyond safe limits.

The 22-B may be converted in the field for shovel, dragline, dragshovel, clamshell, or crane operation. In excavator service, the buckets and dippers are of ¾-yard capacity.



KANSAS CITY BUYS 2ND SET OF "FLEXIBLE" POWER BUCKET MACHINES *(even cleans sewers from cramped basement quarters!)*

Within less than a year from the date Kansas City purchased its first set of Power Bucket Machines this equipment had so completely demonstrated its speed, efficiency and versatility that a second set was ordered—another "on-the-job" proof of performance.

Extreme flexibility of the equipment is shown above. This machine was lowered to the basement of a Kansas City factory in a freight elevator to clean a trunk sewer line. "Flexible" Power Bucket Machines go where the job is—on street level or below—and clean lines speedily and at low cost.

Write the nearest "Flexible" office today for your illustrated catalog.

FLEXIBLE SEWER-ROD EQUIPMENT CO.

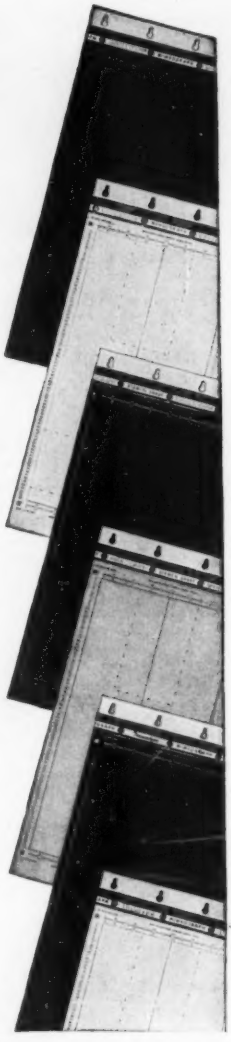
9059 Venice Blvd., Los Angeles 34, California

141 W. Jackson Blvd., Chicago, Ill. — 401 Broadway, New York 13 — 147 Hillside Ter., Irvington, N. J. — P. O. Box 165, Atlanta — P. O. Box 445, Memphis, Tenn.

801 E. Excelsoir Blvd., Hopkins, Minn. — 29 Cordon Ave., Roslindale 31, Mass. — P. O. Box 447, Lancaster, Texas — 41 Greenway St., Hamden, Conn.

3786 Durango Ave., Los Angeles 34, Calif. — 709 House Bldg., Pittsburgh 8, Pa. — 4455 S E. 24th Ave., Portland 2, Ore.

a complete line of A.B. Dick Mimeograph Stencil Sheets



For every purse . . . for every purpose! The originator of the famed mimeograph process, A. B. Dick Company, now brings you the benefits of years of experience, research, and testing. Here's a complete line of stencil sheets that make possible more uses and better duplicating at lower cost! Now more than ever, **mimeographing is BALANCED duplicating.**

Call your nearby A. B. Dick distributor—he's listed in the Where-To-Buy-It pages of your phone book—or write to the address below for full information on these stencil sheets. For use with all makes of suitable stencil duplicating products. A. B. Dick Company, 5700 W. Touhy Avenue, Chicago 31, Illinois

A. B. DICK—*the first name in mimeographing*

	USES	ADVANTAGES	SIZES
1200 Series	For medium or short runs of straight typing work. Gives good reproduction of all standard typewriter faces. Will handle signatures and some drawing, but extensive stylus work not recommended.	Low cost makes it practical to mimeograph many jobs heretofore neglected. Soft green color is easy on the eyes—helps in preparing and proofreading.	Legal, letter, note, and specials
1100 Series	Also for medium or short runs, but can handle long runs. Sharp character reproduction. Effective for lines, shading, drawing, handwriting, or any Mimeoscope (R) work.	Low cost combined with versatility. Rich blue color makes proofreading easy. Truly an inexpensive, high quality, all-purpose stencil sheet.	Legal and letter
1000K Series	The top quality stencil sheet for typing. Excellent for systems and procedures work. Will take signatures and handwriting too. Can produce a few, a few hundred, or thousands of copies.	Cost only slightly higher than 1100 Series. Clear yellow color gives high visibility for proofreading. Colored cushion sheet gives a proof, or "flash" copy on the backing.	Legal, letter, note, and specials
2200 Series	A satin film-covered all-purpose stencil sheet that gives extremely high readability. Characters are reproduced clearly and boldly. Handwriting stylus No. 469 can be used with film on. Drawing, lettering, and shading are done with film removed.	Amazingly easy to get excellent typing results. Reduces chances for errors due to erratic pressures. Characters stencilized in broad, clear lines. Equally effective for short, medium, or long runs.	Legal and letter
2300 Series	Another satin film-covered stencil sheet that gives first-rate results with all standard faces of type. Handwriting stylus No. 469 can be used with film on. When film is removed, characters and line work are slightly finer.	A tough stencil sheet to stand heavy typewriter use, yet versatile enough to take fine drawing, lettering, or line work. Attractive yellow with black cushion makes proofreading simple.	Legal and letter
900 Series	Unexcelled for all uses. Superior character reproduction of all standard type faces. Clear copies of handwriting, lettering, ruling and drawing. Excellent for tracing, for forms and systems work. The finest stencil sheet for any mimeograph work.	The king of them all. Proved by years of top service in many fields. A few or thousands of copies perfectly duplicated. Simple to proofread. Easy to work with. Midnight blue helps the eye.	Legal, letter, note, and specials

New Mist Sprayer Shown at Meeting

Even tall trees are reached by this powerful spray, and the underhanging branches remain uninjured.

The new mist sprayer made by the A. B. Farquhar Co., York, Pa., was demstrated for the first time at the National Shade Tree Conference held recently in Baltimore.

Utilizing a new principle, the Model 125 sprayer reaches 90-foot-high tree tops and produces a remarkably heavy fog. A big convenience feature of the machine is its small size.

Handy Sidewalk Snow Blower

As the grass stops growing and the sidewalks get ready for drifts, the manufacturer of the Sensation mower appropriately offers a Snow-Blo. Powered by a 1½-hp gasoline engine, fitted in front with a self-sharpening scoop backed by a multi-blade impeller, and equipped with a handle behind, the Snow-Blo operates much like a lawnmower. Fresh snow is quickly thrown up to 25 feet from the cleared path. Packed snow is pulverized and thrown away. It clears a 16-inch swath in snow up to 12 inches deep. Other features are described in a new folder available from Sensation Mower, Inc., Ralston, Nebr.

Aluminum Ladder Gets Trade Name

The Aluminum Ladder Co., Worthington, Pa., will sell its products under the trade name Alco-Lite to distinguish them from similar products. This company manufactures aluminum straight, step, and extension ladders, fire ladders, and aluminum gangways.

Haiss Names General Manager

W. E. Madden, recently elected vice president of the George Haiss Mfg. Co., Inc., 141st to 144th St. on Park Ave., New York 51, N. Y., division of the Pettibone Mulliken Corp., Chicago 51, Ill., has been made general sales manager of the company. Haiss manufactures portable conveyors, buckets, and bucket loaders.

the new Detectron

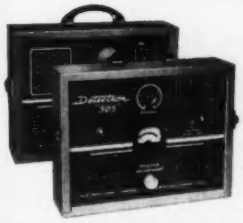
MODEL 505

PIPE LOCATOR

"The Greatest Improvement in Years"

THE ONLY PIPE LOCATOR WITH THE

LIFETIME GUARANTEE*



*MODEL 505 is fully warranted for the LIFE OF THE INSTRUMENT if instructions accompanying it are followed completely.

Consider these Features:

- Matchless Performance
- Unequalled Circuit
- Shielded Loops
- Metal Case—modern, smart
- Greater Depth—simpler control
- Greater Sensitivity
- Light weight—easily handled
- All these and many more at a

NEW LOW PRICE

The DETECTRON line is the result of the combined electronic research and experience of more than 30 years. It is a completely new instrument throughout—not a copy of existing locators, and will therefore render a service of which others are incapable.
We invite your comparison.

AND THE PRICE . . .

is lower than you think! Now you can get the best at a much lower price than ever before.

New - type built - in drop handle for ease of operation and for more sensitive location.

Descriptive Folder on Request

THE Detectron CO.

5637 Cahuenga Blvd. • No. Hollywood, Calif.

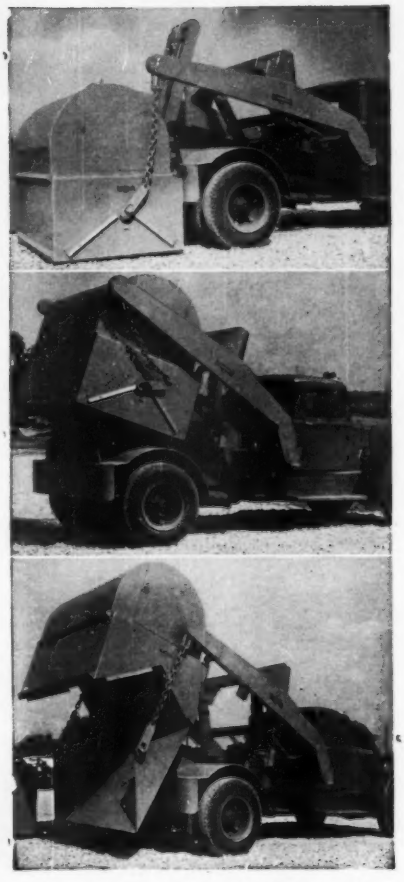
Dozens of Containers —*but only one truck*

It's the Dempster-Dumpster System for Bulk Rubbish Collection at the Lowest Possible Cost!

In comparison with the conventional truck method of bulk rubbish collection, the Dempster-Dumpster System is simple, far more economical and efficient. It assures exacting sanitary conditions and wins the enthusiastic support of the people.

Minimum investment in rolling equipment is a major advantage. The Dempster-Dumpster System comprises a single truck hoisting unit which serves any number of containers, up to 10 cu. yd. capacity. Various designs are available to handle moist or dry materials. Containers are placed at convenient locations in business districts, housing sections, apartments, schools . . . wherever bulk rubbish accumulates. The Dempster-Dumpster Truck Hoisting Unit makes scheduled rounds, picks up each full container, hauls it, dumps it, and returns it. All containers are rat proof, fly proof, fire proof. Wind or scavengers cannot scatter trash. All of which are important to sanitation and public safety.

Shown at right are the three simple steps in handling a container —pick-up, hauling, and dumping. One man, the driver, handles the entire operation by hydraulic controls in the cab. The Dempster-Dumpster System is a complete, unified plan for bulk rubbish collection. A system, which, because of its tremendous savings, no town or city can afford to do without. Write today for complete information.



DEMPSTER DUMPSTER
TRADE MARK REG.

DEMPSTER BROTHERS, Inc.
8119 DEMPSTER BLDG. KNOXVILLE 17, TENN.

Side Suction Pumps Have Low Head Duty

From the Aurora Pump Co., 66 Loucks St., Aurora, Ill., comes a line of small-capacity, low-head, side-suction pumps at speeds from 1,750 to 3,500 rpm for general service or for use as an integral part of such products as air-conditioning units, cooling towers, or circulators.

Available in sizes of ¾ inch, 1¼ inches, and 2 inches, the pumps have a capacity of 5 to 85 gpm and heads of 0 to 45 feet. Casings are vertically split. Discharge can be rotated to any of several positions 60° apart. Mechanical seal is standard equipment.

The impeller is balanced, of the enclosed type, and made of high-grade bronze material. The motor is available for all electric circuits and various enclosures, and equipped with stainless steel shafts.

Power Digger for Small Jobs

The Power Digger manufactured by Sherman Products, Inc., Royal Oak, Mich., is tractor-powered and hydraulically operated—and it can dig through oiled road surfaces, clay hardpan, heavy roots, and in rocky soil with rocks that may weigh as much as a ton. The Digger is efficient for underground

utility repair work and for working in tight places. The shovel has a below-ground-surface reach of six feet, and an 11-foot digging reach behind the tractor. Its speed of operation per hour is 50 lineal feet at a 6-foot depth. The standard shovel cuts an 18-inch-wide trench and has a capacity of 3.5 cubic feet.

NOW... IS THE TIME
WELL LIGHTED PLAY AREAS PAY OFF!

The Days are Shorter
The Nights Longer...
THE KIDS NEED LIGHTED PLAYGROUNDS

Revere
ELECTRIC MFG. CO. CHICAGO

FLOODLIGHTING
IS AT YOUR BECK AND CALL

We'll Help You Plan

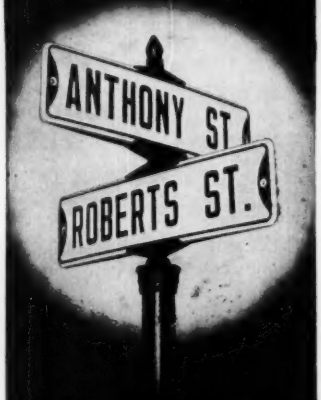
Write for the REVERE CATALOG "Floodlighting for Nighttime Sports" . . . IT HAS HELPED RECREATIONAL DIRECTORS AND COMMUNITY LEADERS SOLVE A VITAL PROBLEM.

REVERE ELECTRIC MFG. CO.

6015 BROADWAY — *Indoor and Outdoor Lighting Equipment to Serve Every Need* — CHICAGO 40, ILL.

Beautiful, Legible, Low-Priced

STREET NAME SIGNS



WRITE FOR CATALOG

Cataphote Corporation

TOLEDO, OHIO

CHAMPIONS
On Every Count

Powerful performance, rugged good looks, extra economy, long life . . . you can demand any or all of these and get them in full measure in a GMC "450."

Truck-built for the tough truck transport jobs, these champions of the 2½-ton field pull their loads with brilliantly performing, GMC-built, 270 cubic inch "Army Workhorse" engines . . . they carry their loads on strong, sturdy chassis that have deep, stiff frames and heavy, rugged axles . . . and out front of the loads their "king-sized" cabs offer comfort, convenience and safety that's unsurpassed.

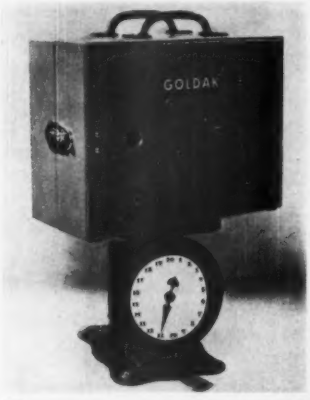
Added to all this are such outstanding qualities as GMC's exclusive bumper-bar grille . . . gross weight ratings of 19,000 to 37,000 pounds . . . equipment options to meet the road and load characteristics of *your* hauling job. Your nearest GMC dealer has complete data.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

GMC TRUCKS

Lightweight Pipe Locator

The new featherweight electronic pipe locator and leak detector, Model 87, that is made by the Goldak Co., 1544 W.



Eleven pounds, complete, says the scale in weighing the Goldak pipe locator.

Glenoaks, Blvd., Glendale 1, Calif., is compact and easy to handle, and weighs only 11 pounds.

The mechanism can be operated by one man to show the exact location of buried pipes, mains, services, gates, tees, ells, and stubs. A new-type electronic circuit provides strong, positive location signal, giving depth as well as location.

Clow Appoints Agency

James B. Clow & Sons, 201-299 No. Talman Ave., Chicago 80, Ill., and its subsidiaries, the Eddy Valve and Iowa Valve Companies, have appointed Symonds, MacKenzie & Co., Inc., Chicago, to handle the advertising of their cast-iron pipe and fittings, valves, hydrants, and heating equipment.

Chunky Firefighter

Two hundred gallons of water are carried besides what you see.

A new fire-fighting trailer is available, equipped with a demountable rotary positive-displacement type rubber gear pump, powered by a 4-cycle gasoline engine. Other equipment consists of an aluminum extension ladder, 200 feet of fire hose, and a combination fog and straight-stream nozzle. An added feature is a 200-gallon water tank supply. Water is used from hydrant, well, ditch, pond or stream. The 95-pound pump can be demounted and carried to any water inaccessible by vehicle. The unit is 6 x 9 feet — no problem to house. Further information is available from Porto-Pump, Inc., 227 Iron St., Detroit 7, Mich.

Philadelphia Buys 32 Autocars

The Autocar Co., Ardmore, Pa., is completing delivery of 32 pumpers to Philadelphia, Pa., at a cost to the city of more than $360,000.

The Autocars have a 180-inch wheelbase. They carry a two-stage centrifugal pump that delivers 750 gpm, four 2½-inch discharge valves, and a 100-

gallon booster tank with 250 feet of one-inch booster hose. Compartments in the body hold 1,200 feet of 2½-inch hose and 400 feet of 1½-inch hose.

BREAK AND CUT COSTS THE EASY WAY

BREAK WITH POWER, SPEED, ECONOMY

The MIGHTY MIDGET reduces the cost of breaking asphalt and concrete to a minimum cost that is unequalled by other methods. Tamps backfill at an unbelievable pace; gives high density. All controls within operator's reach. Operates on 105 C.F.M. compressors.

Write for information to Department "D"

R.P.B. CORPORATION
2751 EAST 11th STREET - LOS ANGELES, CALIFORNIA

Concrete VIBRATORS

Gasoline Engine or Electric Motor Driven CONCRETE GRINDERS

OTHER PRODUCTS
FRONT END LOADERS
for Industrial Tractors
HEATING KETTLES
for Asphalt and Tar
AGGREGATE DRYERS
for Stone and Sand
ASPHALT PLANTS
Portable—Stationary
Write for Circulars

White Mfg. Co.
ELKHART INDIANA

ROADMASTER Street Sweeper WIRE

High Scleroscope Rating
Uniform temper.

Specially processed for high fatigue — against breakage. Long wearing. Conveniently cut and delivered in 100 and 200 lb. boxes. Prompt shipment from stock of all standard sizes.

This gutter broom wire will prove an economy in your service.

"MORE MILES PER BRUSH"

JOHNSON Steel & Wire Co., Inc.
Worcester 1, Massachusetts
New York Akron Chicago Detroit
Los Angeles Toronto

KARPARK

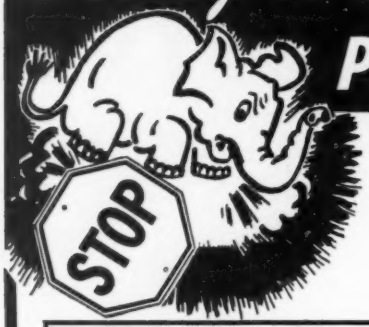
MAKES IT SIMPLE

KARPARK never confuses the parker. All that's needed is the easy insertion of a coin. The rest is automatic. There is nothing to forget — no handles to turn, no levers to move. Simple operation is an important reason why KARPARK is so successful in bringing better traffic control and steady satisfying revenue to the city. Write for all the facts.

KARPARKS ARE MANUFACTURED BY THE HERSCHEDE HALL CLOCK CO.

KARPARK
Automatics
KARPARK CORPORATION
CINCINNATI 6, OHIO

Seeing is Believing! COLUMBIA PLASTIC SIGNS WITHSTAND



Punishing Impact!

HAMMERING, POUNDING, BENDING, STONE-THROWING, SHOTGUN or RIFLE BULLETS *CANNOT CAUSE DEFACEMENT!* COLUMBIA PLASTIC SIGNS resist the most severe mechanical abuse!

The SIGNS will bend only under great pressure . . . but when released, snap back into shape. Natural material resiliency resists cracking, or denting. The COLOR CANNOT CHIP because it is molded integrally throughout the signs!

Every COLUMBIA SIGN is of seamless PLASTIC construction . . . engineered for maximum strength . . . GUARANTEED against RUST OR CORROSION for the lifetime of the sign. *All* COLUMBIA PLASTIC SIGNS conform to newest sign standardizations.

COLUMBIA PLASTIC SIGNS are practically INDESTRUCTIBLE! They surpass all other highway markers for PERMANENCE . . . ASSURE GREATER SAVINGS by cutting down maintenance costs!

GUARANTEE!
The plastic base material in COLUMBIA SIGNS is guaranteed against rust or corrosion for the life of the installation.

Write for COLUMBIA Booklet
It will give you a wealth of up-to-date Traffic Marker information.

COLUMBIA SIGN & SIGNAL CORP.
10030 LORAIN AVE. CLEVELAND, OHIO

American Structural Steel Gets New Distributors

The American Structural Steel & Tank Co., 21050 West Eight Mile Rd., Detroit 19, Mich., has appointed the following distributors for its American Vacuum Leaf Loader:

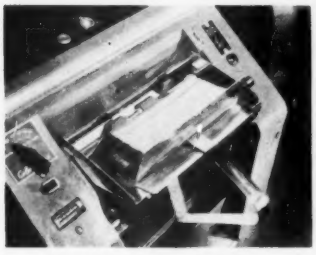
Michigan Tractor & Machinery Co., Detroit 27, Mich., covering the lower peninsula, state of Michigan.

Stockberger - Seastrom, Inc., Ft. Wayne, Ind., serving the state of Indiana and the Northern half of Illinois.

Shaffer Equipment & Supply Co., Richmond, Va., for the state of Virginia.

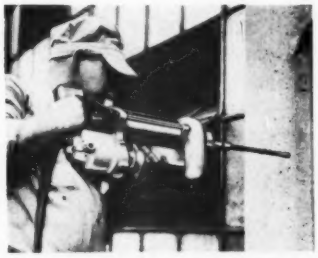
Straits Engr. Co., Sault Ste. Marie, Mich., covering the upper peninsula of Michigan.

Film-A-Record Cameras Have New Check Feeder



A new device which automatically feeds checks or cards of 2½ to 10 inches in width into a microfilming camera at the rate of 250 a minute has been added to Remington Rand's fast-growing line of photo-records equipment. Further information can be obtained from Remington Rand Inc., Room 287, Photo Record Div., 315 Fourth Ave., New York 10, N. Y.

Self-Rotation of Drill Bit On New Electric Hammer



The operator can hold the hammer in any position for an effective job.

The Syntron Co., 430 Lexington Ave., Homer City, Pa., has introduced an electric hammer that hammers and rotates the drill bit simultaneously, taking out all the hard work in drilling concrete, masonry, or rock by eliminating the quarter turning of the star drill wrench by hand to get a round hole.

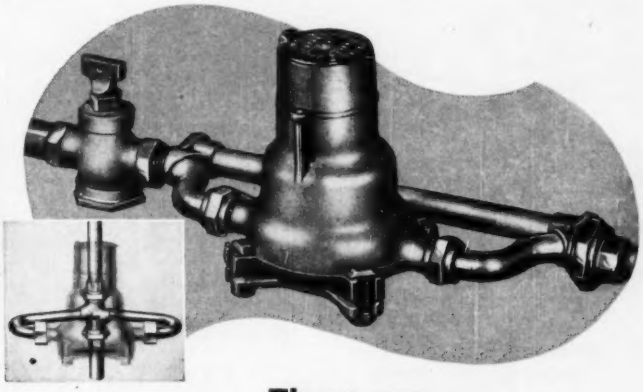
The hammer will drill holes up to two inches in diameter. It has an automatic safety clutch on the rotating drive that will slip if the bit binds or gets stuck in its hole, and the percussive hammering can be stopped while the bit continues to rotate to clean the hole. The Model 25-RO rotating electric hammer is available for either 110- or 220-volt a.c. operation.

Syntron has also developed a new line of drill steels to use with these new hammers. They have carbide cutting edges and spiral flutes.

Asphalt Institute Appoints Wellborn

The Asphalt Institute, 801 Second Ave., New York 17, N. Y., has appointed Arvin S. Wellborn, formerly with the U. S. Navy, Bureau of Yards and Docks, as managing engineer of the Pacific Coast Division. Mr. Wellborn will cover Washington, Oregon, California, Arizona, and Nevada.

During the past 16 years, Mr. Wellborn has had experience in the laboratory control, design, construction, and maintenance of highways with the Arkansas Highway Department, and also in industry in the maintenance of asphalt products.



There are
DOUBLE BARRELED VALUES
in these
BETTER BASEMENT SETTINGS!

Ford Meter Settings not only help you install and replace meters in a fraction of the usual time, but they add a prestige that comes only with a reputation for doing things right.

Ford settings are impressive in appearance—obvious in value. You need use them for only a short period of time to sell yourself and your customers too.

Start now . . . . write for the complete Ford catalog No. 50—it's F R E E.

THE FORD METER BOX COMPANY, INC.

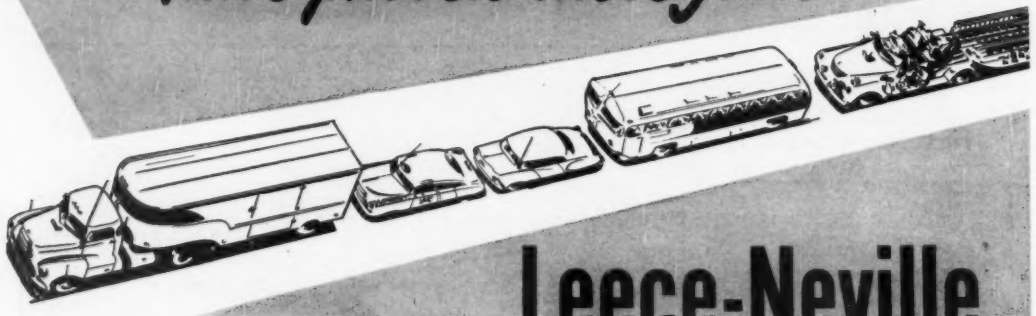
FOR BETTER WATER SERVICES FORD

Wabash, Indiana

Since March 1946

Thousands of Installations

have proved these facts...



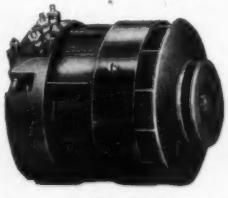
Leece-Neville

America's *original* A-C Systems are the only ones offering all these proved advantages!

- Alternator systems can provide 35 amperes (or more) with engine idling and full output at all driving speeds to keep batteries fully charged while supporting the unlimited use of accessories.
- Weigh less and require less space than D-C equipment of comparable rating.
- Require less maintenance and operate with less danger of burn-out because Alternator has no commutator with commutating brushes or no rotating armature windings to cause sparking.
- Eliminate radio "fade out" and range reduction caused by weak batteries—hold radio noise level to an absolute minimum and prolong life of radio equipment.

HIGHER-OUTPUT A-C GENERATING SYSTEMS KEEP BATTERIES UP—COSTS DOWN —SUPPORT MORE ACCESSORIES

Leece-Neville pioneered A-C generating in the automotive field over three years ago. Now thousands of installations—on all types of equipment in all parts of the country—provide overwhelming evidence of what these *higher-output* systems can do wherever there is a need for greater generator output. Specifically, they keep batteries always fully charged . . . keep costs down by eliminating battery maintenance . . . support more electrical accessories. Here's *powerful* protection for emergencies—and a wealth of extra power for more efficient and more economical operation at all times. See your nearest Leece-Neville Service Station for all the facts . . . or write *The Leece-Neville Company, Cleveland 14, Ohio.*



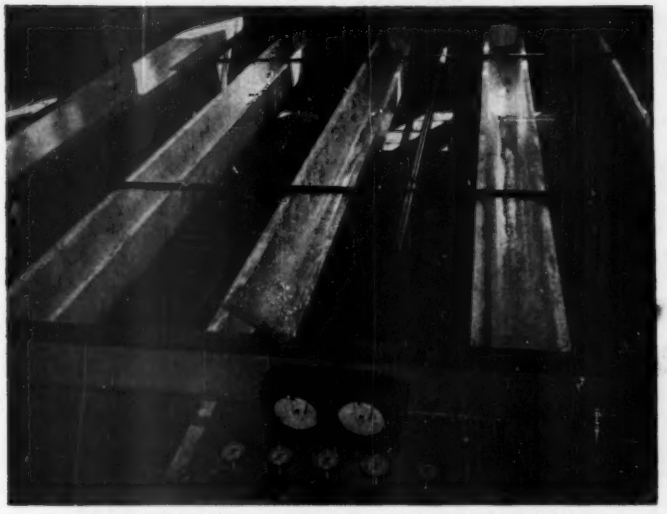
THIS ALTERNATOR is the heart of the popular Leece-Neville 7-volt A-C Generating System which meets every output requirement up to and including 80 amperes. 14-volt systems available with ratings of 60, 80, 100 and 150 amperes.

LEECE-NEVILLE

Pioneer and STILL Quality Leader

CRANKING MOTORS • GENERATORS • VOLTAGE REGULATORS • SWITCHES

Water Filter Surface Wash Specifications



This illustration shows a typical filter bed agitator installation.

To prepare specifications for water works surface filter agitators, the Palmer Filter Equipment Co., 822 E. 8th St., Erie, Pa., offers these specifications prepared by a western firm of consulting engineers:

Surface wash mechanism to be installed in the filters shall consist of a system of rotating surface agitators, with 4 distributing rotators for each filter with diameter of 8 feet and 3 inches. The system shall be connected to the high pressure mains in front of the high lift pumps and controlled by a hydraulic valve operated from the operating table. The system shall be designed to deliver a minimum of 200 gallons per minute to each unit, with a pressure of 100 pounds per square inch. The agitators shall consist of a rotary mechanism supported by a bronze bearing at the center, with perforated arms designed to apply the wash water uniformly over the surface of the filter media, through multiple jets, also equipped with end jets so that proper agitation in the corners may be assured.

This equipment shall be made by a manufacturer regularly engaged in the production of equipment of this type, who has sufficient equipment installed to establish a performance record, and who has parts and replacements available for maintenance purposes.

Complete shop drawings shall be supplied by the Contractor and approved by the Engineer before shipment of equipment is made.

The Palmer filter-bed agitator is now in use in 417 water supply installations throughout the United States. Of these, 118 are industrial or non-municipal applications. The technical advantages of the agitator are:

1. That it requires an average of 40% less wash water.
2. That it completely eliminates mud balls.
3. That it eliminates cracking or shrinking of the beds.
4. That it produces "new" sand after a short period of normal operation.
5. That its installation and operating costs are low.
6. That it makes possible longer, more efficient filter runs.

Distributors Wanted

If you are in a position to represent a national manufacturer of a device widely used by municipalities, write to the Research Editor, THE AMERICAN CITY Magazine, 470 Fourth Ave., New York 16, N. Y.

Stolp Appointed Ad Manager By A. B. Dick

Myron G. Stolp has been appointed advertising and sales promotion manager of the A. B. Dick Co., 5700 West Touhy Ave., Chicago 31, Ill., manufacturer of mimeograph products.

ROSS
AUTOMATIC
VALVES

Altitude Valves
For control of elevation and heads into and out of tanks basins and reservoirs. hydraulic control.
1. Single acting.
2. Double acting.
3. Combination assembly for three or more automatic operations.
4. Can be equipped with electric and manual controls

Combination Valve
This valve will permit flow in one or both directions acting as
1. Pressure Reducing and Relief Valve.
2 Pressure Reducing and Altitude Valve
3. Relief and Altitude Valve.

Remote Control Valve
Electric remote control — solenoid or motor can be furnished. Adapted for use as primary or secondary control on any of the hydraulically controlled valves.

Also—
Pressure-Reducing Valves Relief and Surge Valves Back-Pressure Valves, Etc.

Established 1879
ROSS VALVE MFG. CO.
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P.O. BOX 596, TROY, N.Y.

American Vacuum Leaf Loader
Solve your leaf or clean-up problem

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LEAF LOADER DIVISION
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21050 W. 8 MILE ROAD DETROIT 19, MICH.

Cities **BIG**

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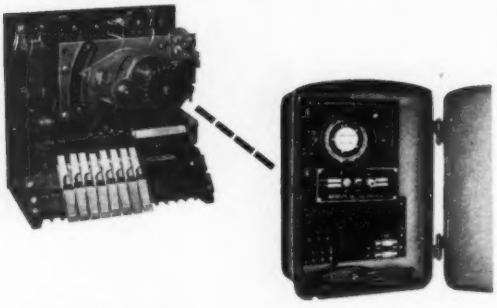
are "switching" to...

MARBELITE
Traffic Signals and Controllers



Dependability that's proved by performance, economy that's evident by comparison, advanced design you can see at a glance... these are the basic reasons cities of every size rate Marbelite best by test.

Hundreds of big cities including New York, Philadelphia and Los Angeles, and thousands of smaller ones from the Empire State to the Golden Gate, are now enjoying trouble-free service from their Marbelite Traffic Control Equipment. And no wonder – Marbelite manufactures traffic signals and controllers *exclusively*. For the facts on how Marbelite can best serve your needs, send coupon today.

THE MARBELITE COMPANY, INC.
27 WARREN STREET, NEW YORK 7, N. Y.

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Please send me complete details on Marbelite Traffic Signals and Controllers used by both big and small cities.

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Title_____

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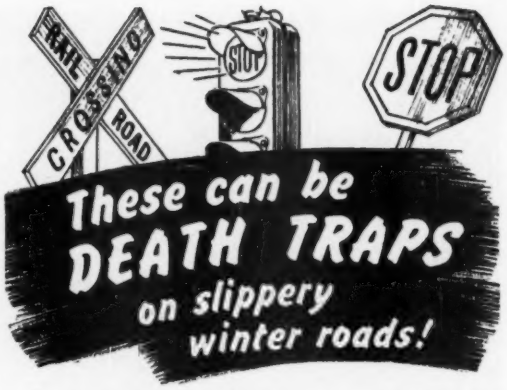
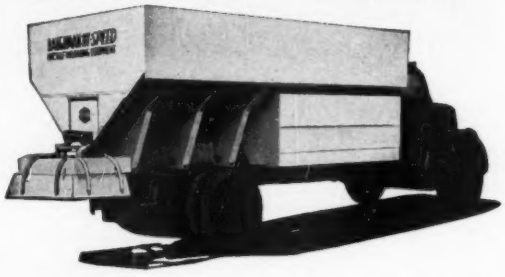
City_____ State_____



Get Quick Effective Ice Control with the BAUGHMAN Spreader



FAST ACTION is needed when roads are icy. The Baughman spreads 8 to 30 ft. widths at 25 mph. One man with a Baughman does the job of several crews on ordinary truck bodies. Cuts manpower costs . . . lowers equipment requirements.

ALL-WEATHER OPERATION. Built-in exhaust heater keeps material and conveyor chain in working condition in lowest temperatures. Ruggedly built with less weight . . . more rust resistance. Arc-welded throughout.

CAB CONTROL
Vacuum clutch control in cab starts and stops drag chain and distributor. Prevents waste — skid-proofs hills and curves to desired lengths . . . spot-spreads at junctions.

ALL ONE-MAN CONTROL!

CONCENTRATED SPREAD
Adjustable baffle plates limit width of spread . . . stop waste . . . prevent damage to passing cars and injury to pedestrians. Completely regulated volume. Uniform spreads.

LOW PRICE . . . QUICK DELIVERY

WRITE FOR FULL INFORMATION

BAUGHMAN

BAUGHMAN MANUFACTURING CO., Inc.
2111 Shipman Rd. Jerseyville, Ill.
"There is a Baughman Distributor Near You"

J. D. Cotton Dies

Joseph D. Cotton, vice-president and director of The Four Wheel Drive Auto Co., Clintonville, Wis., died recently.

J. D. Cotton

Largest individual stockholder of the company, Mr. Cotton had been associated with FWD since 1915 when he became advertising manager for the company whose stock he had purchased at its organization. Three years later he was elected a member of the Board of Directors and the year after that he became the first president of FWD's subsidiary in Canada. In 1920 he was named vice-president of the parent company.

Dorr Takes Over P-A Equipment

The Dorr Company, Engineers, 570 Lexington Ave., New York 22, N. Y., has acquired rights to the metallurgical jigs and sewage aerators of the Pan-American Engineering Co., which is now in the process of liquidation. The design, production, and marketing of this former Pan-American equipment has been taken over by Dorr. Mr. W. G. Moore, formerly design engineer for Pan-American, is now a Dorr staff member.

New Firm Forms

Robert C. Weinberg, H. A. L. Behlen, and Bruno Funaro have formed an organization under the name of R. C. Weinberg & Associates, Architect and City Planners, 400 Madison Ave., New York 17, N. Y. The firm will undertake the design of residential and commercial buildings and alterations; research and editing in architecture and allied fields; and consultation in zoning, site planning, and community development.

Worthington Promotes John S. Bachman

John S. Bachman has been appointed sales manager of the Ransome Construction Equipment Sales Div., located at Dunellen, N. J., of the Worthington Pump and Machinery Corp., Harrison, N. J. Mr. Bachman, who was formerly construction equipment regional supervisor, with headquarters in Washington, D. C., succeeds William F. Lockhardt, who recently resigned. Mr. Bachman has, in the past, been associated with the Koehring Co. and with D. C. Elphinstone, Inc. He started with Worthington in 1940 as a sales engineer in the Washington District office, was transferred to the Construction Equipment Division in 1946 and made regional manager in 1948.

"We have used GREEN-BAK covers for years — and I do not hesitate to recommend them. In 1948 we responded to 13,631 alarms and spread 19,860 covers. Salvage of physical property runs into many thousands of dollars, to say nothing of values accrued in prompt rehabilitation of premises for continued work or living. Salvage pays dividends . . . big dividends . . . in fire department public relations."

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Specify *Shuredry* Salvage Covers. They pass every test for water penetration, seepage, resistance to cracking when folded, pliability in coldest weather. Fulton Green-Bak Salvage Covers are light in weight, easy to handle, and are the preference of fire departments everywhere.

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Other quality Fulton Products that will give you long, economical service are Fulton Triple-Strength Tarpaulins, Fulco Cotton Concrete Curing Mats.

Shuredry Salvage Covers can be obtained through your regular fire equipment dealer.

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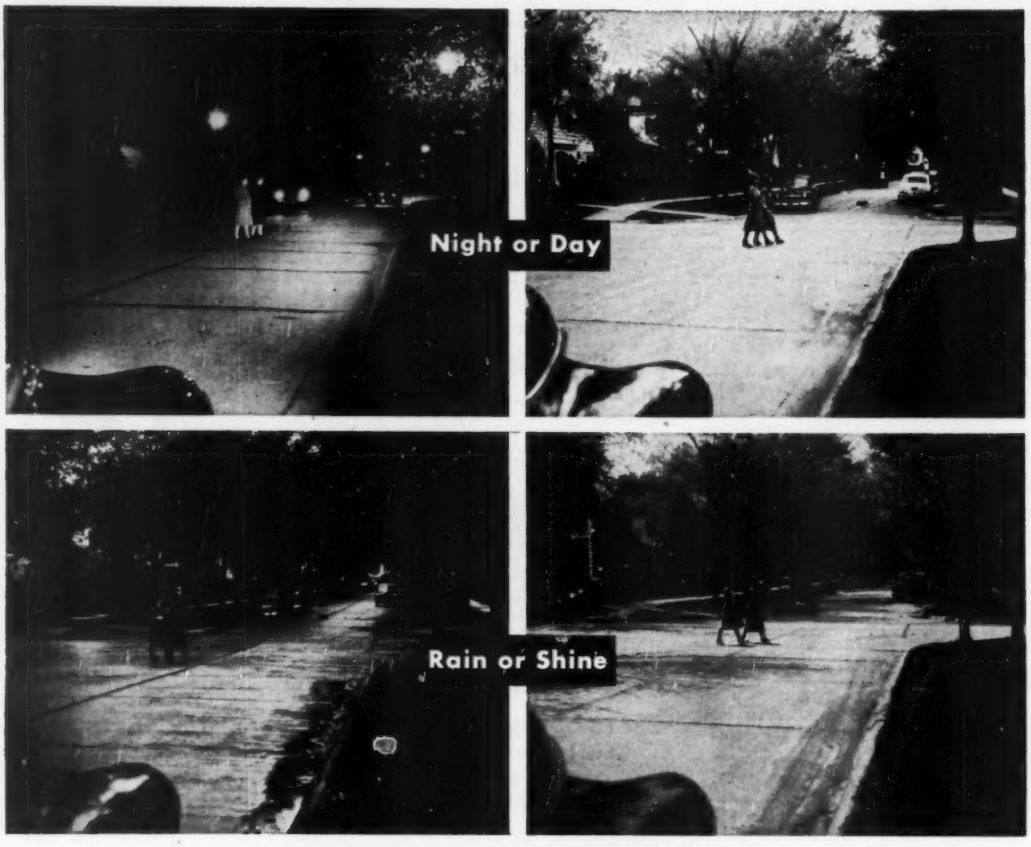


Concrete is the *SAFETY* Pavement

THERE ARE MANY reasons why traffic accidents occur, but traffic safety *begins* with the pavement. The first measure of accident prevention is to build roads and streets with concrete—the pavement with a high degree of built-in safety.

AT NIGHT light-colored concrete has the highest light reflectance of all pavements. That is a vital safety factor because the hours between dusk and dawn account for about one-half of all accidents even though only about one-fourth of the traffic occurs during that time.

RAIN OR SHINE concrete's gritty surface provides uniformly high skid resistance. That enables motorists to make quick stops with greater safety.

NIGHT OR DAY concrete is a safer pavement because of its high light reflectance and skid-resisting surface. It also is free from hazardous ruts and chuck holes that can easily cause accidents when drivers lose control of their vehicles.

These safety factors explain in part why concrete pavements attract the largest volume of traffic and carry the greatest number of heavy vehicles. But safety is only one of concrete's many advantages.

Concrete usually costs less to build than other pavements of equal load-carrying capacity. It costs far less to maintain. It lasts longer. The result is ***low-annual-cost*** pavement that pleases motorists and taxpayers alike. Concrete also cuts driving costs by saving on gas, tires and car repairs. And its high light reflectance saves on street lighting costs.

For more information about the ***low-annual-cost*** safety pavement write for the free booklet, *"Concrete for Modern Streets."* This literature is distributed only in the United States and Canada.

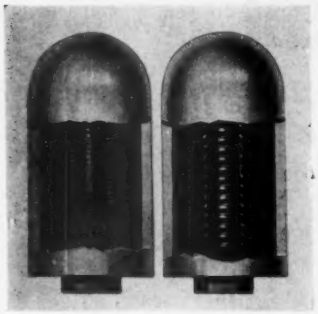
PORTLAND CEMENT ASSOCIATION

DEPT. A11-4, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

Water Hammer Stopped

The Wade Mfg. Co., Elgin, Ill., makes a permanently sealed air chamber that eliminates the damaging effects of



Air sealed within bellows (left) compresses under impact of water hammer, absorbing shock, and (right) decompresses within the bellows as water hammer pressure recedes.

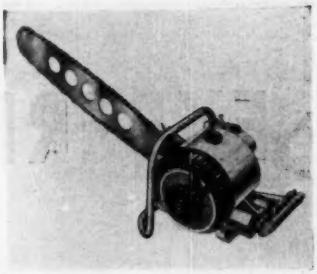
water hammer—and there is no servicing or maintenance after installation of the ShokStop.

The ShokStop provides an air cushion to absorb the water hammer pressure impulse while preventing water logging of the air chamber. A metal bellows allows free contraction and expansion of the air sealed within it but prevents contact between air and water.

New 33-Pound Gas Chain Saw

The Homelite Corp., 109 Riverdale Ave., Port Chester, N. Y., has announced a new line of one-man gasoline-engine-driven chain saws, featuring a complete saw weighing only 33 pounds.

Powered by a 2-cycle, air-cooled, single-cylinder gasoline engine, the saw has a chrome-plated chain that cuts through an 18-inch softwood tree in 18 seconds, and through an 18-inch hardwood tree in 35 seconds. The fast cutting action is the result of a narrower kerf and a simple design which causes less drag and removes less wood.



The minimum weight of Homelite's new chain saw is achieved by the use of light magnesium and aluminum alloys for all major castings in the engine and saw.

CIRCUL-AIR
FIRE HOSE DRYER

WRITE FOR BOOKLET

Illustrates how Circul-Air saves hose, shortens drying time, prevents mildew and rot, air conditions as it dries, improves station design.

THE CIRCUL-AIR CORPORATION
575 E. Milwaukee Street
DETROIT 2 MICHIGAN

● By using Buffalo-made Meters throughout, you base your standardization on the higher meter earning power and other benefits that Buffalo's quality construction and simplicity of design will bring.

AMERICAN BRONZE CASE
NIAGARA GALV. IRON CASE
WATER METERS

BUFFALO METER COMPANY

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A HALF CENTURY OF EXPERIENCE

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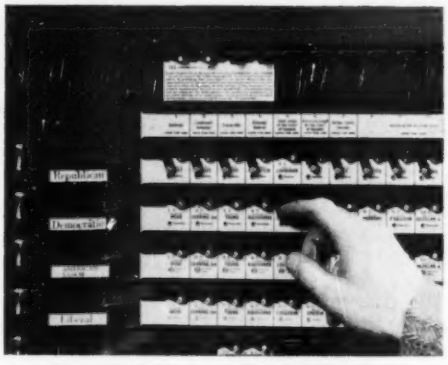


Voter voting a "split' or "mixed" ticket

This convenient eye-level arrangement of the office titles affords as much prominence to Candidates for Local offices as to those for National or State Offices. Over 5,000 communities from coast to coast use the horizontal type, automatic voting machine.

AUTOMATIC VOTING MACHINE CORPORATION

JAMESTOWN, NEW YORK

"Builders of Voting Machines Since 1898"

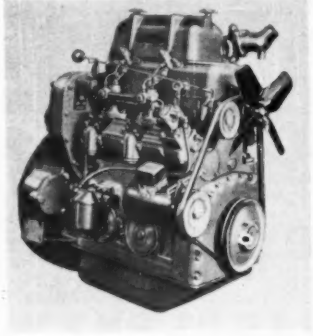
Rust Inhibitor Demonstrated for Ice and Snow Removal

This exhibit presented by Calgon, Inc., Hagan Bldg., Pittsburgh 30, Pa., at the recent annual Congress of the American Public Works Association, illustrated the use of a rust-inhibitor with de-icing salt. One front wheel of the toy car revolves in a plain brine comparable to that formed by melting ice with salt. The other wheel was immersed in similar brine to which Banox had been added. The first specimen rusted badly while the other remained bright.

Harnischfeger's New Diesel

The Harnischfeger Corp., Port Washington, Wis., is making a new P&H, 2-cylinder diesel engine that is two-stroke and high speed, with a 4½-inch bore by a 5½-inch stroke.

The cylinder head is interchangeable from one engine to another and is removable in 40 minutes, providing a saving in time on any maintenance work and reducing the cost on major overhauls. The assembly is completely



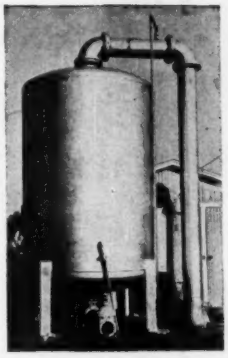
water jacketed and thoroughly cooled. Water travels upward in the liner and passes between each intake port, controlling the temperature at that point.

The intake ports are special machined on a compound angle, sending the air from a root-type blower into the cylinder in a swirling motion that provides thorough scavenging of exhaust gases and complete combustion on the next stroke.

Each individual injector has a large spray hole to eliminate clogging. One injector for each cylinder is located for rapid and convenient change when necessary, and the injector pump is demountable and also exchangeable from one engine to another.

With a width of 28¼ inches, a height of 40⅞ inches, and a length of 32¼ inches, the engine operates on a 16:1 compression ratio at a hp rating of 52.5 at 1,400 rpm.

The McCURDY



SAND & WATER SEPARATOR

Not just a sand trap but an engineered Sand Separator which prevents sand from being pumped into pipe lines and water towers.

- PROTECT YOUR WATER METERS FROM PLUGGING
- ELIMINATE EXPENSIVE METER REPAIR AND SAND CLEANING BILLS

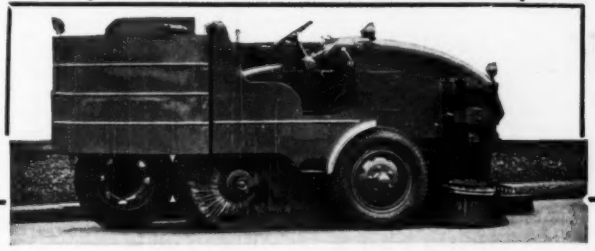
Write today for illustrated literature.

McCURDY SAND AND WATER SEPARATOR COMPANY
4875 Pacific Blvd. Vernon 11, Los Angeles, Calif.

South Bend

GUTTER-SNIPE

Model "E" Pick-Up Street Sweeper



Sweeps 6 feet wide
Holds 1¼ yards dirt
Turns in 19-ft. circle
Can sweep up a 10% grade
Has three sweeping speeds

We also manufacture SOUTH BEND "Big 6" Street Flushers, Bituminous Distributors, Bituminous Maintenance Units, and Gravity and Pressure Sprinklers.

Municipal Supply Company, South Bend 23, Indiana, U. S. A.

Export Department — 44 Whitehall Street, New York 4, N. Y.

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Get *NEW* Revenue From Your Parking Meters

Here's a profitable plan that has been tested and proven to give your city added revenue without trouble or expense. Meterad Corporation installs, services, and maintains these attractive, patented Meterads and pays your city a handsome percentage of the monthly receipts. Each Meterad is fully protected by insurance against public liability claims and is patented to avoid infringements. Investigate this attractive source of income which is yours without effort or expense. Write today.

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Superior Performance

TENNESSEE CORPORATION Ferri-Floc FERRIC SULPHATE Atlanta, Georgia

...of a Superior COAGULANT

SEVEN ADVANTAGES OF FERRI-FLOC

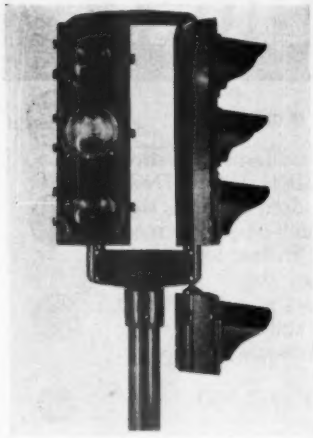
1. Coagulation is effective over a much wider pH range than with other coagulants. Color flocs may be formed in the very acid range where other coagulants may not be employed. On the other hand, true hydrated ferric oxide flocs may be formed at pH 9-10 or even higher for the removal of turpidity and manganese.
2. The time required for floc formation, conditioning and settling is in many cases considerably shorter than that required for other coagulants.
3. Filter runs have been markedly increased in several cases.
4. Manganese is successfully removed at pH values above 9.
5. Effluents may be produced which are exceedingly low in both iron and aluminum.
6. Hydrogen Sulphide is removed and taste and odors improved.
7. Ferri-Floc does not seem to stick to sand grain to form mud balls, and is subject to less "breaking through" on the filters.

Let us send you FREE, this valuable booklet on Ferri-Floc.
Write TENNESSEE CORPORATION,
Grant Bldg., Atlanta, Ga.

Many of the country's larger plants are now recognizing the advantages offered by Ferric Coagulents and are taking advantage of them through Ferri-Floc. — Ferri-Floc eliminates the troubles encountered with other coagulants by improving general quality, reducing overall cost. — All of this is accomplished without costly changes in plant equipment.

TENNESSEE CORPORATION
Atlanta, Georgia — Lockland, Ohio

Something New Has Been Added



The use of this new slipfitter unit for traffic signals made by the General Electric Co., Schenectady 5, N. Y., permits closer coupling of signals and the elimination of pipes, nipples, and tees which detract from the appearance of conventionally mounted signals. Additional signal sections such as *WALK*, *WAIT*, or arrows, can be added to the bottom bracket.

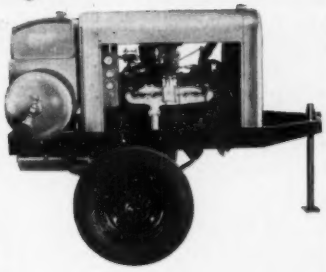
Chief Civil Engineer *Wanted*

An excellent opportunity in an established West Coast engineering firm for an exceptionally well-qualified Graduate Civil Engineer, capable of taking charge of a Civil Department. Must possess comprehensive design experience and thorough knowledge of grading, drainage, roads, railroads, and utility layouts for municipalities. In addition, applicant must have ability to discuss and develop prospective work with municipal, county and state authorities.

Submit photo with experience record covering above requirements in detail. Replies confidential.

Box Number L. A. 323, c/o The American City, 470 4th Ave., New York 16, N. Y

Here's the **COMPRESSOR** *for you!*



. . A new Smith Compressor with more capacity, smooth operation, economy . . long life!

Powered with a famous CHRYSLER Industrial Engine—3 cylinders for power—3 for compression. Evenly spaced power impulses. Capacity 70 cu. ft. at 80 lbs. pressure. Throttle operates about 1/3 open when operating at 150 lbs. pressure. Built for heavy duty without excess bulk and weight. Engine parts available at Chrysler, DeSoto, Dodge truck dealers.

Write for complete facts about the SMITH Model 250!

SMITH AIR COMPRESSORS

GORDON SMITH & CO.

425 College St. Bowling Green, Ky.

WATER HAMMER *can cost a* **Fortune**

Used and specified on hundreds of new buildings—and installed on thousands of old buildings to prevent costly "Water Hammer"—the Williams-Hager Flanged Silent Check Valve will solve your problem, too! Write for new technical bulletin.

THE WILLIAMS GAUGE CO.

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. . . are you inviting — LITIGATION?

municipalities . . . utilities . . . contractors

One type of ready-made *suit* that fits without alteration can be avoided with the Miro-Flex "MEN WORKING" sign. *Formed* for extra strength, this double-faced sign gives ample warning with its standard black-on-yellow message . . . saving lives, *litigation*. Sign, frame, legs made from zinc-coated, bonderized, rust-proof steel. Finished in baked-on enamels. Folding center legs and convenient handle for easy carrying. The flexible staff and warning flag optional. Item is in stock for immediate delivery.

wire, write or phone for one or 1,000

Write for the new Miro-Flex catalog . . . your index to the *complete* sign line . . . from "MEN WORKING" to traffic signs, assemblies.

MANUFACTURED BY 11-49

MIRO-FLEX CO., INC.

1824 EAST SECOND STREET · WICHITA, KANSAS

Using the 5-HP GRAVELY
IS LIKE HAVING
EIGHT MORE MEN
On Your Maintenance Crew

Yes, City records *prove* that the Powerful 5-HP GRAVELY Tractor with its 19 attachments does the work of eight men. . . . Some of these attachments listed below will help you cut your city's maintenance costs.

30-Inch Lawn Mower
72-Inch Gang Mowers
42-Inch Sickle Mower
50-Gallon Sprayer
Rotary Saw
Power Sweeper
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Nineteen attachments are available. Fill out the coupon below for our NEW catalog of GRAVELY Equipment. See how the GRAVELY can save your city money—do the work of eight more men! Mail today!

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GRAVELY MOTOR PLOW AND CULTIVATOR COMPANY
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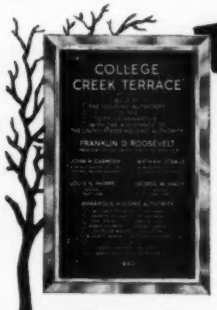
☐ Send Catalog and Prices

Name ..... Title .....
Address ..... Zone ..... City .....
County ..... State .....

19 YEAR-ROUND, TIME-PROVED ATTACHMENTS

VALVES & HYDRANTS

M & H products, including pipe line accessories, are well known for high quality of material and expert workmanship. They are made according to standard specifications and have been used for many years throughout the country. Write for Catalog No. 34. Address M & H Valve and Fittings Company, Anniston, Alabama.



your city deserves the best —
UNITED STATES BRONZE TABLETS...

for signs, statues, cornerstones, homes, hospitals, schools, municipal buildings

One of the country's largest plants devoted exclusively to bronze tablet work assures you of the *finest* in bronze at *lowest* prices. Free samples, sketches, estimates — prompt mail service. WRITE TODAY FOR FREE CATALOG!

"Bronze Tablet Headquarters"
UNITED STATES BRONZE SIGN CO., INC.
570 Broadway, Dept. AC, New York 12, N. Y.

Insurance Safeguards Municipal Assets

City and town officials, busy with a multitude of duties, sometimes overlook the value of a sound insurance program for the protection of the assets of the municipality.

The properties of a town vary from a few small buildings to many large structures. Included are schools, police and fire department quarters, water pumping stations, power plants, and the town hall or municipal building. Contents of these buildings, motor vehicles, and various types of machinery are also municipal property. Often many of the municipal buildings are located in one central area giving a concentration of values which is subject to loss far beyond the capacity of the town to absorb in its general operation.

A midwestern city which insured its own property set aside a sum annually to build up a fund. During the depression, however, this was "tapped" for various purposes, as is often the case with insurance funds. When fire severely damaged a school, the city faced a critical deficit. The fund contained only $50,000, whereas the amount required to repair the school was estimated at $150,000.

As is well known, insurance companies have the advantage of the law of averages in their business because literally millions of properties are covered under policies. Experience proves that few buildings, compared with the large number insured, are totally destroyed; otherwise rates would have to be much higher. The average city, however, does not have the benefit of the law of averages in protecting itself against losses and it is impossible to predict when a catastrophe may occur.

Officials of any municipality need the advice and assistance of a competent insurance agent or committee of experienced agents in putting into effect a program. When the need for an intelligent municipal insurance program is recognized by city officials, a number of steps may be taken by the agent involving a great deal of work on his part. A review and analysis of existing policies must be made, noting the amounts or limits of liability, rates, premiums, and expiration dates of all policies. A list of all insurable property has to be prepared with the value of structures and contents shown separately.

With the necessary data secured, capable agents can then draw up a proposed plan of insurance, listing kinds and amounts of insurance and the premium cost. The amounts of insurance are usually not less than 80% of value of insurable property.

A vital part of the service rendered by agents is an analysis of the insurance rates including an inspection of the properties. The aim of such a survey is to secure the lowest rates commensurate with existing conditions. Often minor improvements can be made, resulting in rate reductions.

As a further service the entire program is reviewed periodically, not only to take into account changes in physical properties and conditions affecting them, but also to check on new developments in the insurance business which may be advantageous to the municipality. This type of service is a boon to busy city officials.

The field staff of The Home Insurance Company, New York 8, N. Y., has acquired wide experience in municipal insurance through serving many towns and cities of varying size and will be glad to assist in the preparation of a survey of the needs of any municipality.

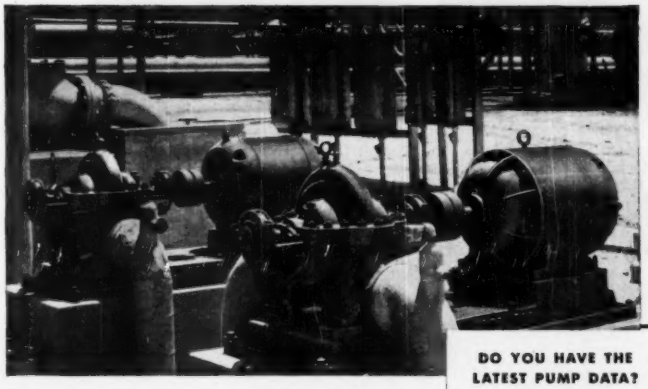
P. S. Wilson Joins Energy Control Co.

P. S. Wilson has joined the staff of Energy Control Co., Inc., 5 Beekman St., New York 7, N. Y., as a specialist on water works metering and control equipment.

Energy Control offers instrumentation service particularly useful to the water and sewage works fields.

Mr. Wilson will continue his other activities in the sanitation field in the representation of such products and companies as the Bethlehem Flow Tube, Mineralead, and the Gregg Co. He retains his office in Glen Ridge, N. J.

WHERE THERE'S A PUMP IN YOUR PLANS



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All along your flow lines, Peerless can provide pumps incorporating the latest principles of hydraulic practice and experience plus the versatility and efficiency you require for *peerless* pumping performance.

For example, the pumps shown above are single stage, double suction, general purpose Type A pumps, a comprehensive line of Peerless pumps offering a capacity range from 50 to 60,000 gpm. There are scores of other Peerless types, hundreds of other Peerless models for thousands of pumping applications. Peerless furnishes horizontals for handling solids in suspension as well as for clear liquids. There are pumps for boosting, circulating, transferring and filtering. They can handle volatile L-P Gases or tricky acid, basic and salt solutions. They can move liquids at high temperatures or they can provide water (or foam) for *Underwriters' approved* fire protection. Duty can be intermittent or continuous; both single and multi-stage units, with the type of drive you desire, are available, meeting widest head and capacity conditions. Pump and driver are engineered as a unit, tested in a modern hydraulic laboratory that duplicates actual field conditions, to match or exceed purchasers' expectations.

Peerless field and sales engineers are located in all principal cities. For pump engineering information or service, call on them, or if you prefer, write for the latest pump engineering data. The chart at the right lists a number of the types of Peerless horizontal pump bulletins in which you will be interested.

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Here are a few of the services Peerless Pumps perform. Request data by Bulletin number.

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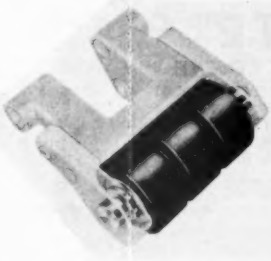
Front-End Spreader Mounts On Any Dump Truck

No more truck backing necessary to spread material.

The Roadsaver, made by the Gabb Mfg. Co., Inc., Division of the E. Horton & Son Co., 16 Orchard St., East Hartford 8, Conn., is a front-end spreader that may be mounted or dismounted in seconds on any standard dump truck. It spreads sand, chip stone, or rock from 2 to 20 feet in width, and the width, density and uniformity of the spread are controlled by levers on the operator's platform.

The hopper, which guides the material on the belt from the rear of the truck, is adjustable to accommodate any length of truck.

No Floor Damage With This Wheel



The Aerol Powered Pallet-Loader Replacement Kit is a wheel assembly—rubber-tired, with differential action—that not only is long-lived, but also eliminates gouging and chipping of the floor on sharp turns.

The differential action is obtained through a series of three independently rotating rubber-tired wheels, each separated from the others on the axle by oil impregnated, anti-friction thrust washers.

Rolling quietly on shock-absorbing, non-binding, rubber tread, the assembly is furnished as a complete, easy-to-install kit for such vehicles as the Lewis-Shepard, Yale & Towne, and Automatic Powered Pallet Loaders.

Field tests prove that tread life is comparable to that of steel rollers and many times that of fibre wheels. The kit is made by the Aerol Co., Inc., 2820 Ontario St., Burbank, Calif.

Woodruff Promoted

T. E. Woodruff, formerly manager of the St. Louis branch house pump department for Fairbanks, Morse & Co., 600 So. Michigan Ave., Chicago 5, Ill., has been appointed assistant manager of the pump sales division, with headquarters in Chicago. Mr. Woodruff has been with Fairbanks, Morse since 1912.

T. E. Woodruff

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THE MUNICIPAL INDEX

470 Fourth Avenue New York 16, N. Y.

Finger Touch Opens Windows

The Stewart Iron Works Co., Inc., 1621 Stewart Block, Cincinnati 1, Ohio, has put on the market a new type of

merchanically operated metal louver window that affords simultaneous sash control over various stages of ventilation—and eliminates all direct air currents.

The windows have both direct and remote control adaptations and a touch of the finger operates the enclosed Centrol mechanical operator.

Standby Power to the Rescue

Standby electric power supplied by D. W. Onan & Sons, Inc., 43 Royalston Ave. N., Minneapolis 5, Minn., in the form of electric generating plants and gasoline engines has in many instances of emergency saved lives and property. The units have been employed during such crises as polio epidemics to insure continuing service of iron lungs, oxygen

tents, and other equipment. In everyday service of power plants, gas and water utilities, and other municipal projects, a sudden failure of power can cause not only inconvenience to the community's citizens but an actual endangering of life. The Onan units are designed to automatically start operating as soon as the regular equipment fails, providing uninterrupted service.

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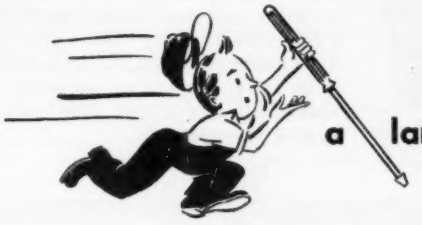
Only one man with a socket wrench



a large screwdriver

a light sledge hammer

one collision breakage repair kit (breaking ring, coupling, 2 pins, gasket)

and 30 minutes

More and more communities standardize on KENNEDY SAFETOP Fire Hydrants because SAFETOPS are proved dependable under the most rigorous conditions . . . and because SAFETOP maintenance and repair features are simplified for greater economy and efficiency.

Write for Bulletin 62 describing *all* the details of the KENNEDY SAFETOP'S design and construction. No obligation!

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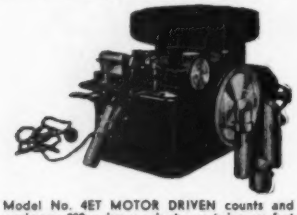

Model No. 4ET MOTOR DRIVEN counts and packages 800 coins a minute or twice as fast as the manual machine. Wear and friction have been reduced to minimum. Weight 76 pounds.

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Abbott Coin Handling Machines for Parking Meters are used by many municipalities for sorting, counting and wrapping money taken from parking meters. All Abbott machines, manual and electric driven, count any and all five denominations of coins. Both counting machine models shown here automatically lock after each count of 20, 25, 30, 40 or 50 coins for packaging or will count indefinitely into a bag. Register can be reset to zero.

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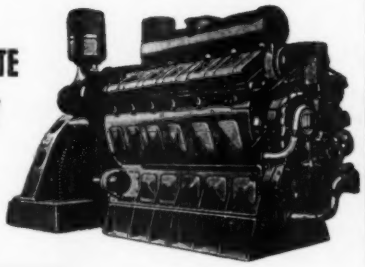

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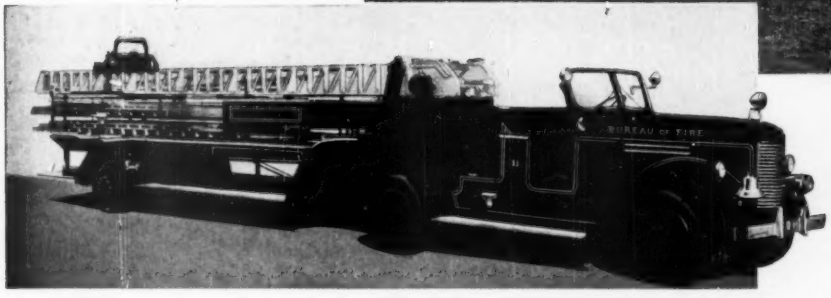

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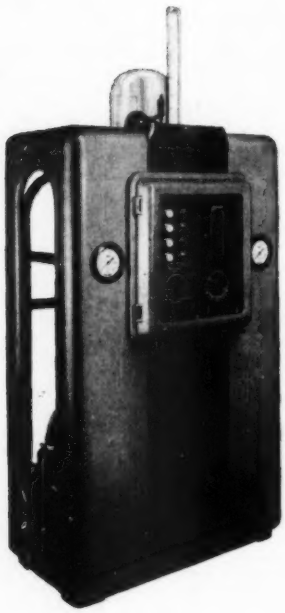

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